The Builder.

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ILLUSTRATIONS.

The Chapel, Stonyhurst.—Messrs. Dunn, Hansom, & Dunn, Architects; Drawn by Mr. H. Montgomery ..... *Double-Page Ink-Photo.*
Additions to Dunraven Castle, Glamorganshire.—Messrs. Williams, West, & Slade, Architects..... *Double-Page Photo-Litho.*
Bank Premises, Rosario, Argentine Republic.—Mr. William Kidner, F.R.I.B.A., Architect ..... *Single-Page Ink-Photo.*
A Design for a Town Church.—By Mr. Amos Hall, Architect ..... *Single-Page Ink-Photo.*
A House at Weybridge.—Mr. Ernest Newton, Architect ..... *Single-Page Photo-Litho.*
Additions to "Little Menlo," Beulah Hill.—Mr. Ernest Newton, Architect ..... *Single-Page Photo-Litho.*

Blocks in Text.

Diagram showing Method of Securing Zinc Roofs..... *Page* 372
Diagram showing Strut and Tie, Forth Bridge 373

CONTENTS.

The Glasgow Exhibition 369
Notes 373
Architecture at the Royal Academy.—IV..... 374
The Greek and Roman Stage 375
The Architectural Association: Notes of a Sketching Tour in Belgium 376
The Chapel, Stonyhurst..... 379
Dunraven Castle, Glamorganshire..... 379
Bank Premises, Rosario, Argentine Republic 379
Design for a Town Church..... 379
House at Weybridge 379
Additions to "Little Menlo," Beulah Hill..... 379
The Surveyors' Institution: Professional Examinations, 1888 .. 379
Architectural Societies 379
The Association of Municipal and Sanitary Engineers and Surveyors..... 380
"The Ventilation of Sewers" 380
London Theatres in 1596..... 381
Hanover Square Baths Competition..... 381
Holiday Homes 381
The Student's Column: Iron 387
Books: Morse's Japanese Homes and their Surroundings (Sampson Low); Stevens's Parochial History of St. Mary Bourne (Whiting) 381
Recent Patents 382
Recent Sales of Property 382
Meetings 383
The Metropolitan Railway Company's Surplus Lands 383
Miscellanea 383
Prices Current of Materials 385

The Glasgow Exhibition.

THE "International Exhibition" (so-called) at Glasgow, is not in reality international except in so far that foreign exhibits have been invited, and that some few are to be seen here and there. A really international Exhibition is probably never achieved except in a capital city; and, in fact, the Scottish element is very predominant in the Glasgow show, as might have been expected. But the thing has been well done, and though as a whole it hardly equals the Manchester Exhibition, it is superior to that in some important departments.

The Exhibition buildings occupy a portion of a park or grounds in the western portion of the city (which, as in London, is the aristocratic quarter), overlooked on the north by the University buildings standing on a rising ground, from which the site dips rapidly into a little valley traversed by the river Kelvin, on the south side of which are the Exhibition buildings. These form a long block running east and west, with a main avenue and a one-armed transept or transverse avenue, and at the west end a very large square annexe is occupied by machinery in motion and dynamos. The building has been designed by Mr. Sellars, in a somewhat Moresque style, which is suitable enough for a wooden temporary structure of this kind, in which a somewhat festal effect is desirable; it is painted in red and warm buff externally, as the predominant colours, in bands and otherwise, and looks suitable and gay enough; but in the internal treatment of the crossing dome the temporary character has been a little forgotten, and the four large, solid-looking, semicircular arches look a great deal too serious in design for a structure of this kind; too palpable an imitation of brick building. There is a large sixteen-sided dome over them, divided up into panels, and connected with the substructure by elaborate pendentives; and the arcades up the main avenue are filled in with bracketings and Moresque arches built up with thin stuff between the supports. The whole effect is gay and pretty, but of course as complete a sham as a set scene on the stage. Next time an architect is called in to design a structure of this kind, let him try if he cannot produce a decorative effect, with the help of draperies and colour, by an unpretending construction showing for what it is, instead of planking it over with scenic architecture: it would be a more dignified and architectural way of doing it.

The centre space at the east entrance is occupied by a concert-hall with an orchestra and organ (the latter by Walker), to the south of which are the art galleries, including several galleries of paintings, British and foreign, a sculpture gallery, and an architectural room. This latter is one of the departments in which the Glasgow Exhibition is superior to the Manchester one. The collection, we may observe, is limited to the works of living architects; and, chiefly through the exertions of Mr. Honeyman, a collection of drawings and designs has been got together which, in point of general level of excellence and variety of interest, is really a remarkable one; it is not often that so many architectural drawings of a high class are seen together. A few only can be noticed here, taking them in the catalogue order. There is an alarming drawing by Mr. W. H. Hay for completing the national monument on the Calton Hill, showing a Parthenon ruin with a tremendous thundercloud behind it, which is amusing as a record of former aspirations in regard to that freak of "Modern Athens." Messrs. Dunn & Hansom's University of Durham is a fine rich design, collegiate in type, but with much more force and picturesqueness than is usually realised in what is supposed to be the collegiate type of building; the heavy turreted tower, with a series of oriel windows making a vertical feature up the centre, is very fine in effect; the same architects send a good design for a "Church of Our Lady of the Assumption." Messrs. Burnet, Son, & Campbell's design for the Clyde Trust Offices we noticed when it was in the Royal Academy last year. A design for the Admiralty and War Office by Mr. James Lindsay, and one for the Glasgow Municipal Buildings by Mr. T. L. Watson, are good designs, shown in small, neatly-finished pen-drawings. Mr. Honeyman sends a drawing of "Auchamore House, Argyllshire," a watercolour showing a white house (stone?) in the old Scottish style of corbelled-out turrets, and Messrs. Douglas and Sellars a beautiful pen perspective of "Mugdock Castle," apparently an old castle ruin with a modern castle built adjoining it. Mr. Sidney Mitchell's "Well Court, Village of Dean," is a pen-drawing of a most original castellated-looking mansion on the edge of a moat or pond; we presume this is a modern house, though with a certain Mediæval air about it. Mr. Davidson's "Quinta Sunday Schools" are two charming pen-drawings, in one frame, of a very picturesque building. Mr. Honeyman's interior, showing "Proposed Additions to Dunbar Church," is an excellent water-colour drawing, showing a new hammerbeam roof and a new apse to the old Gothic church, in the middle of which apse stands a large and stately Jacobean monument proposed to be preserved and re-erected in this position (needless to say, the church is not Episcopalian). Messrs. Salmond & Son's "Design for Trades House, Glasgow," is a powerful and notable design, Classic in detail, but distinctly Gothic in feeling and grouping, with a tower and lantern with Classic flying buttresses and pinnacles rising from between two large expanses of mullioned window. In "St. George's-in-the-Fields Parish Church, Glasgow," by Messrs. H. & D. Barclay, we have a large bold pen-drawing of one of those cold Classic temples which in so many places do duty as churches in Glasgow; in this case an orthodox Ionic order, not treated with additions and illustrations, as the late Mr. Thomson used to treat his neo-Greek designs. Messrs. Hay & Henderson's elevation of their design for the Edinburgh Municipal Offices we illustrated some time ago. Dr. Rowand Anderson sends a large sepia drawing of the interior of the Catholic and Apostolic Church at Edinburgh, a modern Romanesque church, and another of his design for the Central Station Hotel, which is a fine building, with a round-arched ground story, pointed windows grouped in couples over it, and then two stories of square-headed mullioned windows with pilasters intervening; the grouping of the windows is very rich and effective, and the plain square tower at the angle gives force and contrast to the whole. A curious drawing, by Mr. D. P. Low, evidently rather an old one, represents "the cosmical development of architecture," in a scene in which multitudinous buildings are grouped, commencing with Egyptian on the left and ending in Gothic on the right: a kind of thing people used to be very fond of fifty years ago: but the drawing is not quite good enough for so ambitious a scheme. Messrs. Perkin & Bulmer's "Pontefract Town Hall" is noticeable both as a good design and as an excellent example of architectural water-colour drawing. Messrs. Burnet Son, & Campbell's "Arrangement for Proposed Organ in Greyfriars' Church, Stirling," in which the organ is standing about in small detachments in various corners of the church, may be permissible architecturally, but is absolutely ridiculous practically, as any organ-

builder ought to have told them. Mr. J. D. Peddie's "Interior of Telling-room at the Royal Bank, Edinburgh," is one of the most beautifully executed of tinted architectural drawings, in the representation of the various marbles and other materials, but the interest of the architecture is hardly equal to that of the drawing. We notice, in passing, a "Country Residence, Holmewood," by Mr. W. Young; "Dulwich College," by Mr. Charles Barry; "Houses in Collingham-gardens," by Messrs. George & Peto; "Tower of St. Paul's, Manchester," by Mr. J. Oldrid Scott,—a fine solid piece of modern Gothic; and a coloured drawing of the reredos at Grantham Church, executed by Messrs. Heaton, Butler, & Bayne, from the designs of Mr. Blomfield. There are one or two churches by Mr. Ewan Christian; a house by Mr. Collcutt, "Hayes, Kent"; the interior of the "Church of the Holy Redeemer at Clerkenwell," by Mr. Sedding. This is the Classic church, with banded columns, which was illustrated in the *Builder* a year ago (May 7, 1887). Mr. Norman Shaw contributes one of his very best drawings, that of the Offices of the Alliance Assurance Company, the well-known building at the bottom of St. James's-street, and two of his houses in Cadogan-square. Mr. Blomfield sends his design for the restoration of the front of the south transept of Chester Cathedral (see *Builder*, May 16, 1885); Mr. Emerson, St. Mary's Church, Brighton; Mr. Brydon, the Chelsea Town-hall; and Mr. Gilbert Scott, the interior of the Church of St. John the Baptist, Norwich. This last is a remarkable design, an interior of generally Decorated character, but with great cylindrical columns, more like Norman work, from which the moulded arches spring. By Mr. Jas. Brooks is an interior view of his Liverpool Cathedral design. Mr. J. O. Scott sends a coloured view of Lahore Cathedral, a powerful-looking brick building with drop arches in front of the windows, abutting on the buttresses. Mr. Norman Shaw's "View of Wispers, Surrey," is a well-remembered drawing, one of his most picturesque, of a house rising above a bank covered with trees. The interior of the Church of Holy Trinity, Chelsea, by Mr. Sedding, is nearly the same view as that in the Royal Academy, No. 1,768, but the columns or shafts are shown circular here, while they are octagonal in the Royal Academy drawing; we prefer the effect of the circular form. Mr. Edis contributes the pen perspective of the Constitutional Club, of which also a fine coloured detail elevation is exhibited further on; and Mr. Ewan Christian exhibits a charming water-colour drawing of "Mayfield, Kent," an unusually picturesque house. A number of photographs of executed buildings we must pass over for want of space. Among a few remaining drawings we may mention Mr. Leadbetter's very pretty pencil sketch of "Stronachlacher Hotel"; Mr. T. G. Jackson's interior of the "Great Hall, University of Oxford"; Mr. Macpherson's "Church of the Sacred Heart, Edinburgh," a fine water-colour of a portion of a basilica interior; Mr. Lewis's drawings of goldsmith's work for "a toilet set"; Mr. Aitchison's "Decoration of Drawing-room," &c.

The collection of sculpture does not realise the ambitious programme which was talked about a year ago, when it was said that fifty years of sculpture would be represented, as Manchester had so splendidly represented fifty years of painting. The difficulties in the way of realising such an exhibition would be much greater than in the case of painting, owing to the greater space occupied by sculpture and the greater cost and risk in transporting it. As it is, the collection is contained in one gallery of moderate dimensions, and rather overcrowded; but it is a rare collection in regard to quality, containing few works that are not of high excellence. Among the well-known examples of recent English sculpture which are to be seen there are Mr. Thornycroft's "Mower," Mr. Boehm's "Carlyle," Mr. Harry Bates's bas-relief "Homer," and the same artist's "Dido and Æneas," Mr. Mullins's "Autolycus," and his "Isaac and Esau," Mr. Stirling Lee's "Cain," Mr. Onslow Ford's nude figure carrying a torch, and entitled "A Dirge," and his seated statue of "Mr. Irving as Hamlet"; Mr. Woolner's "Achilles and Pallas," a small alto-relief which will be remembered in a former Academy exhibition; Mr. Lawson's "Ave Cæsar!"; Mr. Thornycroft's "Teucer," Mr. Stirling Lee's St. George's Hall bas-relief, "Justice," which met with such an unworthy reception at Liverpool; M. Boucher's "Au But"; M. Dalou's "La Paysanne," a mother and infant, which attracted great attention in a Royal Academy exhibition some years ago; M. Suchetet's nude study, entitled "Byblis," and as a kind of pendant to it, Mr. Stirling Lee's "Dawn of Womanhood"; Mr. Lawson's "Summer," Mr. Nelson Maclean's "Tragedy" and "Comedy," Mr. Birch's "Last Call," M. Longepied's "L'Immortalité," and Sir F. Leighton's "Sluggard." This is a considerable collection of fine works in itself; there are others less familiar which are well worth note. We do not remember to have seen before a noble life-size bas-relief in bronze by Mr. Woolner, "Virgilia bewailing the Banishment of Coriolanus," a seated figure with the head brought out into high relief in front of a frieze of men fighting, in very low relief. This is a work of the highest order in sentiment and execution. Mr. Rhind has produced a life-size nude figure of a "Reaper," apparently as a kind of rival to Mr. Thornycroft's "Mower," and a protest against the realism of the latter, but there is something more than mere realism in the "Mower," a work which, in spite of the sculptured boots, has rather gained than lost in estimation since it was first exhibited. A very pretty marble figure by Signor Argenti, "The Sleep of Innocence," is new to us, and presents a simplicity and absence of mannerism, unfortunately not often found in modern Italian sculpture. M. Gautherin's "La Victoire" is a fine thing, as also is M. Marqueste's noble little statuette of "Diana surprised,"—not the commonplace alarmed nymph, but a regal figure raising her head with an expression of haughty surprise that any one should dare to intrude on her. M. Dubois' "La Foi," a seated, fully-draped figure, with both her hands raised in an attitude of aspiration, is fine in tone and feeling. M. Lanson's "L'Age de Fer," a plaster model of a group in marble in the Luxembourg, is more remarkable for its large scale than for higher qualities; and as a reminder how little size has to do with real greatness of style, let the visitor look at the frame of medals by the eminent French medallist, M. Roty. These are really among the finest things in the collection, both in conception and design, and in modelling; and it is rather painful to compare them with the common-places of English medal-work. The catalogue, we may observe, is calculated rather to mislead the ignorant in its use of the word "school" in distinguishing the nationalities: "French school," "Italian school," &c. As a matter of fact, the French alone at present can be said to have a "school" of sculpture, as far as the word implies a generally-recognised standard and method; and yet some of the French works exhibited, such as Longepied's reliefs called "Spring" and "Summer," can hardly be said to belong to that school, and, on the other hand, such a work as Mr. Stirling Lee's "Dawn of Womanhood" belongs distinctly to the French school, although its artist has an English name. It would have been sufficient to distinguish works as "French" or "Italian" merely, without complicating matters by suggesting the question of "school."

The picture galleries can hardly be said to be a success in proportion to the number of works and the space they occupy. They are divided into "Loan Collections" and "Sale Collections," both British and foreign. The sale collections are mainly a mere collection of mediocrities with here and there a fine picture among them. Among the British sale pictures are Mr. Poynter's "Diadumene" and the small study for it, Mr. Faed's "Why Left I my Hame?" Mr. C. E. Johnson's fine landscape, "The Wye and the Severn," Mr. Reid's "Shipwreck," Mr. Whistler's "Carlyle," Mr. Brett's "Kyle Akin," and Mr. Alfred Hunt's beautiful and poetic "Dunstanborough"; it says little for the perceptions of picture collectors that this work should still be on sale. Among the foreign sale pictures is a good Tissot (860), a very fine Mesdag (960), and a good Munthe (969), and these were all we noted in the room as first-class works; there are some other more or less good things, and a quantity of nonentities. The foreign loan collection includes some fine Corots, especially Nos. 651 and 748; several landscapes by Rousseau, among which the "Forest of Clairbois" (755) is pre-eminent,—a grand sombre painting of forest, with the colour laid on in masses; Gerôme's "Botsaris," and the "Turkish Bath"; several fine works of Israels, notably the "Shipwrecked Mariner" (742), and (to go to the opposite extreme of subject and style), a rather large work by De Nittis, "Under the Chestnuts," a scene apparently on the Bois de Boulogne Avenue. Other painters represented in this gallery are Bouguereau, Troyon, Van Marche, Diaz, Millet, Bastien-Lepage, Daubigny, &c., but they are mostly represented by small and unimportant productions.

The Loan Collection of British pictures fills two galleries, and contains a certain number of remarkable works, old and recent. Turner's "Wreck of the *Minotaur*" has been lent by the Earl of Yarborough; there are one or two other Turners, not first class, and one of Constable's "Dedham Vale" pictures, and his "Arundel Mill"; a very fine Muller, "A Mediterranean Scene," looking like a kind of modern Claude,—perhaps with more power than Claude. Several well-remembered earlier works by living painters are interesting to see again: Sir John Millais's "The Rescue" (which we like no better than when it was painted any number of years ago); Sir F. Leighton's exquisite bit of colour and design, entitled "Weaving the Wreath"; Mr. Burne Jones's "Wood Nymph" and "Sea Nymph," two of the best and most real of his fancies of this kind,—the latter a kind of stained-glass design, with a conventional decorative treatment of waves, very clever in its way, though puzzling to the uninitiated. Among others of these old friends are Mr. Arthur Hughes's "Eve of St. Agnes"; Mr. Hook's "Are Chimney Sweeps black?" one of the best and freshest of his coast scenes; Mr. Pettie's wonderfully clever and spirited "Sword and Dagger Fight"; Mr. Erskine Nicol's "The Tenant's Reply"; Mr. Leslie's "School Revisited"; Mr. Wallis's "Judgment of Paris," and Mr. Burne Jones's "Pan and Psyche," one of the prettiest of his mythological pastorals. We looked rather to the specially Scottish element among the pictures which might be expected to be found under the circumstances; it must be admitted that the works by R.S.A.'s were not the cream of the collection, but there are one or two fine things among them which were new to us; among others, Mr. Smart's fine landscape, "Glenorchy"; "Running Water," by Mr. G. P. Chalmers"; "Kilchurn Castle," by Mr. MacCullock; Mr. Lockhart's "Don Quixote at the Puppet Show"; Mr. Herdman's "Effie Deans in Prison," a fine study of the contrasted character of the two sisters; and Mr. Hugh Cameron's "Three Generations," a picture apparently inspired by Israels. The late David Scott's remarkable work, "The Traitor's Gate," which comes to light every now and then at some loan exhibition, is to be seen again here, though it is viewed with indifference by the painter's countrymen, who prefer to crowd round a commonplace picture, called "The thin Red Line," because it represents a Highland regiment in action. In truth, the crowd of picture-seers at Glasgow seemed to be even more hopelessly ignorant of the meaning of the painting and sculpture than the crowd at the Royal Academy, and that is saying a good deal. Before quitting the picture gallery, we may mention among the prominent works, besides those already noticed, Mr. A. Moore's "Midsummer" (from the last Royal Academy exhibition); Mason's "Wind on the Wolds," lent by Sir F. Leighton; Sir J. Linton's "The Benediction" and also "The Banquet," both from the same series of pictures; Mr. Wyllie's lower Thames picture "Toil, Glitter, and Grime"; a grand landscape

by Mr. E. A. Walton (108), recalling the style and feeling of "Old Crome"; John Phillip's powerful portrait of a powerful and original Scotch artist, "Sam Bough"; Mr. H. Moore's sea-piece "Clearness after Rain," only inferior to his grand work in this year's Academy; Mr. John Pettie's "Musician"; Mr. Fildes's "Return of the Penitent"; Mr. Tadema's "Le Demande au Père," and the same painter's "Rose of all the Roses"; and Mr. Pettie's clever "Challenged." We have only space to mention the collection of works in Black and White, which includes a number of good etchings, including a large selection of Mr. Whistler's etchings and a large selection of Meryon's. These and other works, many of them of high interest, are most unfortunately hung on the walls of the grand hall, on what is practically one side of a passage where people are constantly thronging and passing, so that any continuous study of them is almost out of the question: besides, small and delicate works like etchings do not bear to be hung in a great space; they are "cabinet pictures," and want a small room proportioned to their scale and effect.

The main central avenue of the Exhibition is occupied, as usual in exhibitions of this kind, with large collections or "trophies" of various classes of work. The right-hand wall of the Great Hall, just on entering, we may note, is occupied by a large frame of architectural illustrations which have appeared during the last two or three years in the pages of the *Builder*. Beyond the limits of the concert-hall, going down the avenue westward, we come first to the large show of Templeton & Co. (Glasgow), of upholstery and carpets of Oriental character. Next is Clark's cotton trophy (Paisley) of cotton reels, built into various shapes, under a hideously-designed wooden canopy:—

> "But things like this, you know, must be
> At every famous victory,"—

or famous exhibition. Some fine embroideries are to be seen among the exhibits of a silk-mercer's firm next in order down the central avenue,—Copland, Lye, & Co., we believe. It is impossible to verify names from the catalogue because (as usual in these cases) it is impossible to find anything in the catalogue except by accident, or to discover from the catalogue where anything is to be found. Let us pause and moralise on this point for a moment. The whole of this absurd and inconvenient confusion as to place and page, a recurring difficulty in every exhibition of this kind,—results from the futile effort to classify exhibits on the pages of the catalogue according to their nature. They cannot always be so grouped on the floor, because space is precious and things must be got in where there is room, so that the order of the exhibits never follows the order of the catalogue except now and then by chance. All this might be entirely avoided by the simplest exercise of common sense and rational system. Divide the floor of the Exhibition into spaces, each distinguished by a letter, with a key-plan with the same letters. If the spaces outnumber the alphabet it is easy to start again with double letters, AA, BB, and so on; number the articles under each letter with their own set of numbers, starting at A 1, going on to A 157, or whatever it may be, then starting again B 1, &c.; and there will then be a catalogue in which every one will be able to find the object from the number, and the number and description from the object. It is the simplest thing possible to do, and it is prevented merely by the absurd craze for arranging these catalogues in chapters, each dealing with one class of subject. People do not want to read a catalogue like a book; they merely want to know where to find information about the thing they are looking at, of whatever sort it is, or where to find an exhibit which they see described. By the system we have just suggested this would be perfectly easy; and if the managers of the next large exhibition will try it, they may produce a catalogue which is of some use, which cannot be said of any such catalogues that we have hitherto met with.

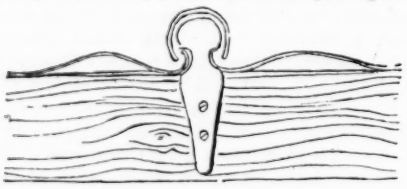
To return, going westward along the central avenue, we come on various carpet collections. Crossley's "Seamless Carpets," and Thompson's Kidderminsters, which are fine work, but in some instances too large and loud in design; raw material of upholstery, in the shape of Ewing's Turkey-dyed worsteds (not nice colours some of them, either), and a touch of architecture in shape of a model of the Ferguslie Spinning Mills at Paisley, and fur trophies and what not of that kind, followed by a large display of Osler's cut glass. This is of some interest, for cut glass, after being banned as inartistic for the last quarter of a century, is coming into the odour of æsthetic sanctity again, and even threatens to push blown glass aside again, which we should regret; blown glass is really the most correct and natural way of treating a material which, in the very making, necessarily passes through a stage of ductility; and, moreover, in blown glass a great deal of artistic shaping and expression can be imparted at very little cost of anything but taste and fancy. Now, cut glass, to recommend itself, cannot be done cheaply; it must be rich in effect, or it is nothing. That exhibited by Messrs. Osler is well executed, and with a good deal of elaboration; but the patterns and designs are commonplace. Better, in regard to artistic effect and feeling, is some of that exhibited in a stand westward of the Dome, by Messrs. McDougall & Sons. Just westward of the Dome, Messrs. Doulton, who are in great force in this Exhibition, have a fine stand of vases and other articles in their ware. They have a second erection a little farther on with a different class of articles; next to which the "Italian Wood-carvers and Metal-carvers' Company" show, among other things, a quantity of coloured glass of the Venetian type,—a good show, not containing anything different from what one is used to see among these coloured filagree fancies of glass work. Minton's well-known firm follows with a fine exhibit, with a little too much of realistic flowers and landscape, and so on; Messrs. Caulfield & Co. follow with some good porcelain; and Messrs. Jones & Willis with brass-work of the orthodox ecclesiastical type, deserving praise, however, for the pure and artistically-designed outlines of chalices, beakers, &c., and showing also some good wrought-iron work. We then come into the region of ship models, into which we must not diverge, and then to the glazed diamond-cutting room, and beyond to Messrs. Doulton's third trophy, an erection with Doulton ware coloured plaques of Oriental character in panels in a built-up wooden erection, within which the process of throwing on the wheel is going on for the instruction of visitors. Messrs. Walter Macfarlane & Co. have a large exhibit next to this, full of florid ironwork, in cast patterns, most of it loud and pretentious, some of it well modelled and designed in its way,—panels filled with open-work floral designs, &c., capital specimens of elaborate casting, too, in a technical sense, but so utterly repellent to the æsthetic sense that we are driven out in the open air for a change.

The *Temenos* of the Exhibition presents the usual collection of cafés, châlets, fountains, the switchback railway, and so on, but the large stoneware fountain from Messrs. Doulton aims at something higher than the usual kind of exhibition adjuncts. This has a large circular basin, with a boldly-moulded dwarf wall, with a second rather higher interior basin, from which the water wells over and runs in a thin sheet down the sides. It was a complete mistake to mould the sides of this inner basin. The moving film of water requires a smooth surface (flat or curved) to slide over, to bring out the beauty of effect; that is how the Japanese do it. To place mouldings for it to trickle over destroys the effect, and the mouldings seem out of place. From this second basin rises a pavilion, with a group of two figures under an open arch on each of the four sides, each group symbolising a colony; above is a much narrower stage, with figures of three soldiers and a sailor in the niches, and above this it spreads again, and carries some figures of an allegorical tendency, though we cannot say in what direction. The middle stage is decidedly too thin and weak for what is below and above it. The fountain contains good work in detail, but it is not well designed architecturally, as a whole. On the further side of the Kelvin is one of the most interesting things connected with the Exhibition, the Restoration of the Ancient Bishop's Castle, carried out by Mr. Sellars, and which is utilised for a very interesting exhibition of archæological relics of various kinds. The castle is built up in wood, with a very realistic imitation of masonry, which is faithfully carried out, internally as well as externally; the vaulting and the deep internal reveals of the windows are all completely carried out, and only the feel of the wooden steps of the winding staircases is at variance with the scenic illusion. The Exhibition was not arranged nor open to the public at the time of our visit, but we could see enough to know that this would be an archæological collection of no ordinary interest. It includes a good many portraits and relics of Mary Queen of Scots; some fine specimens of old furniture and metal work; plans, engravings, and views of old Glasgow, &c. Among the exhibits is an old bagpipe dated 1500, decorated with bands of the form of interlacing ornament usually supposed to indicate great antiquity; a fact which may be taken as throwing doubt upon the assumed dates of some other objects in which this class of ornament appears. An old and cumbrous wooden bicycle, made somewhere near Glasgow about fifty years ago, is believed to be the first genuine bicycle with a crank action which was made; a form of bicycle which was propelled by the toes of the rider striking on the roadway on each side is, of course, known to have been in use in the earlier part of the century. Another curious exhibit, quite peculiar to Scotland, is a case of silver tokens or tickets admitting the holder to participation in the celebration of the Lord's Supper, as a proof that he had satisfied the presiding minister of his fitness to be admitted to the rite.

The space adjoining the main avenue, immediately west of the picture galleries, is devoted chiefly to exhibits in connexion with building; there is also a space devoted to educational exhibits. Among these latter are drawings by pupils of the Municipal schools at Paris, showing very good shaded drawings of architectural details, and some carpentry exhibits and models made by pupils in the École Diderot. The work of the Art Night Schools in Glasgow is creditably represented by a number of portfolios of drawings. Rigg's "technical educational appliances" is a useful collection of illustrative models, &c., but what is called a "hammer-beam roof" is wrongly named; it is in reality a collar-beam roof with curved braces. The Dundee High School workshops also contribute various models of building construction and carpentry.

Among the building exhibits, Messrs. Shanks & Co. have a very large and well-arranged show of lavatory fittings and baths; among other things their bath with a single turn-tap for operating all the various forms of douche, spray, shower, &c., is a great improvement on the complication of various handles and taps which are usually seen for this purpose; here the hot and cold supplies are admitted and mixed in any required proportion by separate draw-handles, and the form in which the water is to be admitted is effected by the single radial tap with each arm labelled. Doulton's sanitary exhibit is near this, showing, among other things, a specimen of their stoneware spiral condensing worm for dealing with acids for which metal cannot be used; a remarkable piece of work to be executed so cleanly in this rather intractable material. Messrs. Wallace & Connell exhibit (in action) their water-wheel pump for raising water for country-houses, a very simple engine actuated by a small stream on a bucket water-wheel; they have good exhibits in baths, including a large plunge-bath with a new notion of external decoration in mosaic; ships' water-closets are also among their special productions. The British Sanitary Company's earth-closet is a very efficient one, with a perforated "distributor" for the earth; it is strong in make and simple in action, and not liable to get out of order. Ross's automatic flushing tank and waste-pre-

venter cisterns, with an ingenious self-acting plug-valve, should be noticed. Among heavy building materials are to be seen Messrs. Grayson, Lowood, & Co.'s specimens of ganister (composition of silica and alumina) and silica bricks, with some specimens of the latter after twelve months' exposure in a Siemens furnace, which speak well for the fire-enduring quality of the material. Hamblet's Staffordshire bricks and Gilmour & Co.'s coloured glazed bricks are exhibited. Among the zinc and other metal work shown by Messrs. Braby & Co. is a "combination door-mat" formed of rope laid in the valleys of a corrugated zinc bed-plate, the rope being removable and the dirt going into the furrows of the zinc and being easily shaken out as often as desired; this is a useful and sanitary form of mat. The Iron and Steel Fencing and Building Co., of Glasgow, exhibit a simple and effective method of securing zinc roofs (see sketch); the metal key is put in



edgeways, and then turned and screwed to the rafter, and the junction capped over with a zinc roll. They also show an economical method of using corrugated zinc, with slight corrugations formed transversely instead of longitudinally, giving sufficient strength for ordinary purposes with a saving of material as against the ordinary form of corrugation; their movable navvy's hut, wall and roofs built in this way, is a useful and cheap construction of its kind. Messrs. Macfarlane, Strang, & Co., show their water-meters in action; and Messrs. Barstow show an effectual though rather slow filter, consisting of a porous stone bucket with charcoal under. Messrs. Robert Boyle & Sons have a very large show of their well-known ventilating appliances.

There is a fine display of big stone landings from various quarries, among others an immense Caithness flag about 12 ft. by 10 ft. and 3½ in. thick, and ringing like metal. The Carmyllie Quarries, at Arbroath, show also some fine material on a large scale. Of steel forgings and cold twistings there are plenty, the Glasgow Iron Co.'s "basic steel" showing remarkable ductility and tensile strength in the shapes (some of them with very stubborn sections) into which it is "bent cold"; and the Coats Iron and Steel Co. are brilliant rivals in this class of work; the Ebbw Vale Steel and Iron Co. exhibit also a large collection of rolled joist sections; while some of the delicate and minute work of which metal is capable is shown in Messrs. Mountain & Son's almost hair-like makes of brass wire gauze.

There is a section devoted to sporting implements further down, with which we do not specially concern ourselves here, but may just notice that especially Northern class of exhibits, the curling stones, of which Mr. Thorburn is the principal exhibitor. These implements, little known to the Southron, are grey granite blocks of various sizes, circular on plan, and oval in section, polished above and below, with an equatorial band left unpolished (apparently for decorative reasons), and fitted at the top with a lever handle, of wood or ebony, mounted with silver or white metal. Are these the curling stones in ordinary use, or are they *objets de luxe?* They have quite a fascinating appearance, and one can fancy with what a swing a strong arm would set them going over the ice.

The exhibit of Chubb's locks is a large and important one, concerning which we may notice with pleasure the really artistic decorative design of many of the key-handles, a feature sufficiently unusual in modern key manufacture to call for comment; and Milner's safes are also considerably illustrated.

In the transept avenue we come back more or less to artistic work. Messrs. Cooke & Co. have some wall papers of good design, and the Tynecastle Canvas Ceiling Company exhibit a portion of a design for a smoking-room made by Mr. Collcutt for the P. and O. steamers, showing a wall covering, gilt in relief with conventional flower patterns and arabesques, with very rich effect. In the next bay to this the same exhibitors show a really grand wall covering (one can hardly call it wall-paper) in a great flowing foliage design with fruit here and there rising into high relief; this would require a large room and sumptuous fittings to enable one to live up to it, but it is a remarkably fine bit of decorative work. In the centre of the transept avenue are large cases of exhibits of silver and electro-plate by Messrs. Walker & Hall, Royse, and Elkington, of all of which one may say pretty much the same; there is a great deal of costly, brilliant, well-executed work, but very little real art.

In the bays opening from the north side of the main avenue are to be found most of the decorated rooms and furniture exhibits which now form an inevitable feature in these large exhibitions. One finds the same average standard of excellence so constantly in these exhibits, and the same style of work, that our readers can very well imagine what will be the general character of this part of the Exhibition. Here and there one finds a new effect, but not often. Messrs. Longden come first with a carved oak chimney-piece, and Mr. Brown, of Sultanabad, Persia, shows a collection of fine Persian carpets. In these, as in other cases, we only get dealers', and not designers', names. West of the crossing, Messrs. Wylie & Lochhead have an important exhibit behind a white painted façade; their dining-room, with walnut dado and a dark paper, and a plaster ceiling decorated in low relief, is good in detail, and in general effect, all but the dead white of the ceiling, which certainly requires some colour to assimilate it to the room and furniture. They exhibit some artistic wall-papers also. The rooms furnished by Messrs. Bryce & Son show good and solidly-made furniture; the bedroom scheme by Messrs. Bisset & Son (Glasgow) has a certain individuality; dark woodwork combined with flowered paper, in which a grey blue predominates, to which a neutral drugget forms a foundation, and gold colour in the upholstery of chairs, &c. The whole effect is very harmonious. Messrs. Bennett & Sons have a rich-looking room with white marble columns at the back, a dark dado, gold walls, and deep crimson chair upholstery; a rich large flowered carpet design more or less connects the whole; the combination is unusual, but it is striking and not inharmonious in effect. Mr. R. Balfour's room, with a flat Moorish design in dark wood on a gold wall, connected with panel moulds of the same wood over the ceiling, is a good piece of work, but the permanent sideboard should have been connected to the dado design at the top as well as at the base; as it is, it looks like an oversight. The "Scottish Co-operative Wholesale Society" exhibit a very large carved sideboard polished, with pavilions on either side with glass doors for showing plate; a sumptuous and costly piece of work, but, unhappily, the design is not equal to the sumptuosity. Messrs. Gardner & Son are to be praised for their pretty and well-executed marquetry bedroom suite. In this part of the Exhibition we come upon the musical instrument collection, at least the piano and harmonium part of it, and we looked to see if any fresh step had been taken in designs for piano-cases, but they are all of the regulation type. In connexion with the furniture portion of the show we should not forget the important exhibit of Messrs. Denny Bros., of Dumbarton, who have in the western portion of the building a large built-up two-storied design for a first-class passenger steamer's cabin, "A Dining Saloon with a Music-room on the Deck above, and a Well for Light and Air between." This is not exactly "artistic," in spite of the stained-glass for the port-windows, &c.; but it is, on the whole, very tasteful and admirably executed, and is worth seeing as an example of the extent to which luxury can be carried nowadays in fittings for ocean steamers. The whole work, we learn from the catalogue, was designed and executed in the various departments of the Leven Shipyard, the tiles and part of the glass being painted by girls employed in the decorative department.

The Indian Court at the north-west angle of the building contains a quantity of work, and is very extensive, but as far as we observed it is not first-class Indian work for the most part, and contains a good deal of rubbish and toys. We do not know that much more can be said for the Ceylon and Canada courts, except that the latter shows a good collection of woods. There is a considerable collection of models of ships, and a full-size example is also to be seen of what Mrs. Malaprop would have called a "self-righteous" lifeboat: lighthouse lights and other illuminating contrivances also form a portion of the Exhibition; and, of course, the national instrument, the bagpipe, has a stand to itself. At the north-east angle, corresponding to the Indian Court at the other end, is a large area devoted to "Women's Industries," most of which comes not within our province to criticise; there seems to be plenty to be seen there for those who are experts. The collection of machinery, which is a large one, we have not attempted to deal with in this general sketch of the Exhibition, preferring to treat of it separately and on its own merits; and some other portions of the Exhibition we may take an opportunity of returning to more in detail.

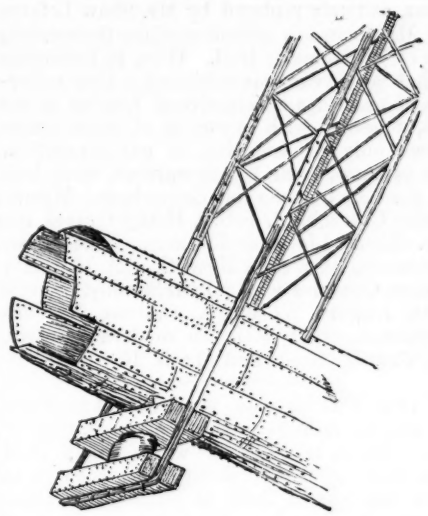
Looking for a moment at work in Glasgow generally, before leaving it, we find the new Municipal Buildings in a very advanced stage, the exterior being, in fact, almost entirely finished, and the interior decoration and finishing in progress. We have never cared much for the exterior design, but it looks better in execution than on paper, and the portion towards the internal court, which is the best portion of it, is treated with a good deal of variety and effect. The main staircases will be sumptuous, with marble walls and balustrades, and a good deal of attention is being paid to the sculptured decorations, which are throughout all designed with special regard to their suitability, in subject and meaning, to their position, and the objects of the building. Among buildings of a comparatively recent date in Glasgow, our attention was called to St. Andrew's Hall, a large public building situated in rather an out of the way site near the west end of St. Vincent-street; this is the design of Mr. Sellars, the architect of the Exhibition building, and is in the severe Classic style which has become a kind of modern tradition in Glasgow. It is powerfully treated, with a large Ionic order and cornice carried right across the front, the cornice unbroken, the columns interrupted by a large rusticated pier dividing the building into a centre and wings; over the centre the attic recedes, over the wings it comes forward, and is decorated with caryatide figures with an ornamental design in the rear. All the details are of a severe Greek character, and the aspect of the whole is dignified and refined, but very cold; it seems to require execution in marble, with a certain amount of constructive polychromy. The general characteristic of modern Glasgow street architecture is of this dignified but very cold character; everything is symmetrical and in horizontal lines and in cold grey stone, but we admit that a long series of stone streets (and it is really very good and conscientious stone work) is better than a long series of brick streets of the Harley-street type. The impression of coldness hangs also over the churches by which "Greek Thomson" made his name famous here; his church in St. Vincent-street, built in the now rather dingy stone, looks gloomy and heavy; in marble, and under a clear atmosphere, it would be different, no doubt, but some of the detail of the architecture seems very scenic and destitute of meaning, however refined in its lines, and we question whether this neo-Greek architectural development in Glasgow has not been over-estimated. That some others think so is evident from the style of one or two perfectly new buildings in the same street, towards the city.

The grim old street names of Gallowgate and Trongate retain nothing now of their ancient aspect; only in the cathedral, that

stern, massive relic of Scotch Mediæval architecture, as Andrew Fairservice described it,—"a brave kirk; nane o' yere whigmaleeries and curliewurlies and open-steek hems about it; a' solid, weel jointed masonwork," we see something like a reflection of the character of Mediæval Scottish history. It is a characteristic building,—English fourteenth-century Gothic, with larger and more powerful details and less grace and refinement: and under the choir is the remarkable dimly-lighted crypt, with its curiously-planned piers and vaulting,—the "Laigh Kirk" of old, according to Scott, where the more Puritan form of worship was carried on by the faithful, and where Frank Osbaldistone received the mysterious warning from the stranger whom he could not see. No place could be better chosen for such an incident, for, in the dim light, a regular hide-and-seek might be played among the piers. Near the Cathedral a big, solid-looking church is in a forward state, from the designs of Messrs. Burnet, Son, & Campbell, with the peculiarity that the buttresses are carried out in one long slope instead of by set-offs. This is quite logical, constructively speaking, of course; as a novelty, it does not look very beautiful, but one might learn to like it by habit. Adam's Royal Infirmary, overlooking the space in front of Cathedral, simple as it is in detail, is a charmingly balanced composition, and we confess we prefer it to a good deal of the more recent "neo-Greek." One of the few picturesque effects in Glasgow is the view eastward from the Cathedral-yard, where the city cemetery is placed on the slope and crest of a hill with the monuments relieved against the sky; a fine bit of effect, out of which a good picture might be made, if any Scottish landscape artist should be moved to do with Glasgow, in this way, what Mr. Macwhirter has recently done with Edinburgh. With which pictorial suggestion we conclude, for the present, our thoughts on Glasgow and its Exhibition.

NOTES.

WE gave some little time ago a diagram of the then state of the work at the Forth Bridge. A recent visit shows that progress has been satisfactory since then, and the vast structures of the cantilevers are now growing pretty far out over the water, though the gap to be bridged between them still appears immense. The work is now nearing the stage when the first tension member and the first strut of each cantilever will be finished and attached, and the construction will then afford a stable basis for building out further from. At the time of our visit last week, the ties were nearly ready to be connected with the lower member on the Inchgarvie pier; on one of the other piers this had been done, and the building of the strut commenced. (The ties, as most of our readers know, are lattice-girders, the struts tubes). Before making the connexion between the tie and the completed portion of the lower member, it is necessary to correct the position of the latter, which, in all cases, has fallen a little by the stress of its own weight. We found preparations just made for this operation on the south cantilever at Inchgarvie. The tie having been carried down within a few feet of the point of attachment, a "bridle" is attached to it passing below the large tube, as shown in the subjoined sketch (from memory), and carrying a short box beam; a similar beam is blocked up from this (the blocking is omitted in the sketch), bearing on the under-side of the tube, and a hydraulic jack placed between them, which lifts the upper beam and the end of the tube with it; the stress, of course, coming on the tie. The amount of deflection from weight at the end of the completed portion of this tube was about 8 in.; the true position is fixed by a theodolite sighting up the centre of the tube, or in some cases along the top of it, as was found most convenient in each case. As we mentioned when publishing the engineer's



diagram, it has been thought necessary to build up temporary lattice columns, to give some support to the upper members until the first struts are completed, though the upper members are at present stretching far out and supporting their own weight and that of a great crane and platform. The whole work, as we saw it from the engineer's steam launch, has a most remarkable appearance at present, the three piers suggesting the idea of three enormous ships with the tubes projecting like gigantic bowsprits over the water, and everything at present hanging out into the air unsupported. The tension-ties have been built downwards from the top, the men working on a platform hung to the tie a few feet above the point of working, and lowered as the work proceeds. On a similar principle the upper member is being built with a platform carrying a powerful crane, seated on the top of the slope of the great girder, and lowered with a screw action, by its own weight, as the work proceeds. It is extraordinary to stand at the end of this great construction hanging out into the air, and equally extraordinary to see the coolness with which the men work in the apparently perilous positions which they often have to occupy. The regular gangways and platforms for access to the leading portions of the work are, however, ample. The gangways are arranged on the top of the upper members, and those for access to the large tubes are slung beneath them. In building out the large tubes it has been found that Mr. Arrol's "cages" for supporting the working platforms have not been so satisfactory as was expected, as the operation of taking them to pieces and fixing them in the next position is very long and tedious; and for the future these will be dispensed with, and the work carried on by a stage and crane supported on the top of the tube; these cranes can be taken to pieces and re-erected in a day. The connexion of the struts and the longitudinal cross-ties with the large tubes is a most complicated piece of fitting, which it would be impossible, however, to describe without drawings. The riveting up is carried on by hydraulic riveters working against a horizontal beam which is carried round the tube, as required, on a system of circular rails concentric with the tube, but of larger diameter, standing out from the surface of the tube to the distance requisite to give space for the working of the riveter; a corresponding riveter inside the tube clenches the inner head of the rivet. In building the tubes on shore, the rivets were, of course, only screwed up temporarily with nuts. The strain really comes on the rivets and on the frictional resistance of the plates, which is very great: an experiment with rivet holes of differing sizes, so as to allow of sliding, having proved that the force required to make the plates slide on one another, when the rivets were clenched and cold, was more than twice as great as the shearing stress for which the rivets were calculated. In fact, the construction, when riveted up, is practically homogeneous. A second inspection rather increases than diminishes our first impression of the extraordinary fascination produced by the enormous scale of the work and the boldness of its conception and execution.

MR. CHARLES HANCOCK, F.S.S., in a letter to the *Times*, points out that the public interest excited by the proceedings of the Royal Commission now inquiring into the alleged irregularities of the Metropolitan Board of Works seems to be indirectly diverting attention from the sewage problem, which the (we hope) coming warm weather is likely to forcibly remind us is still awaiting solution. Having lately brought the subject before the Kensington Vestry, he has received a communication from that eminent sanitary engineer, Sir Robert Rawlinson, who, referring to the sewage precipitation works of the Metropolitan Board at Barking and Crossness, says:—

"With regard to these works, I must say that, as a sanitary engineer, they fill me with astonishment; and, as a metropolitan ratepayer, with indignation. This Board will not be noted in its history for the economy of any of its works. But London can afford to be extravagant over really useful permanent works, such as the Thames Embankment and the main drainage, though the Barking and Crossness outfalls ought never to have been established, as these works never tended to the purity of the river, but to its pollution. There was extravagance then, but it was child's play as compared with the present outlay,—more than a million sterling, and half a million per annum to keep the works going, which can only aggravate existing evils by increasing notorious nuisances. The sludge precipitation and sludge-barges will be huge and costly abominations. The officials of the Board are wilfully sinning against light and evidence obtained by themselves, and furnished by Royal Commissioners. They know that chemicals do not purify sewage. They also know that, however clarified, seven-eighths of the salts of sewage remain, and that the clarified sewage, when discharged into fresh or salt water, will ferment. They also ought to know that the only way to deal with crude sewage economically is to irrigate land with it, as at Berlin, and at scores of places in England,—Birmingham, Bedford, Doncaster, and others,—make conduits from Barking and Crossness to Canvey Island or to the Fens, and arrange for the application of sewage on the road from both sides of the sewage-conduits, and in time every gallon of sewage would be taken, would be used, and paid for by the adjoining farmers and landowners. This say I,—and I know something about the subject."

These trenchant remarks fully bear out all that we have said from time to time in regard to the Board's proposals on this subject. It is perfectly true, as Mr. Hancock points out, that the Board has availed itself of the distinguished services of Sir Henry Roscoe, F.R.S., the eminent chemist, but it must also be borne in mind that Sir Henry's reports, so far, have been directed merely to minimise existing evils, and have only dealt with the deodorisation of sewage at the outfalls and in the sewers, and not with the broader question here raised by Sir Robert Rawlinson. An important report by Sir Henry Roscoe was submitted to the Board some few months ago, but, as we pointed out at the time, it has been treated as a secret document. Why, we ask again, should not a report so fraught with interest and importance to Londoners see the light of day, in order that it may receive adequate discussion and consideration? It has been openly stated at the meetings of the Board that the report in question is kept in the background because it in some important respects condemns the sewage policy of the Board.

ON Saturday, May 12th last, Mr. Justice Chitty made an order as asked upon a petition in Court for winding up the long-forgotten company known by the name of the Lessee Proprietors of the York-buildings Waterworks. A report in the *Times* of May 14th says that that ancient corporation dates from 1690, its business was taken over by the New River Company in 1818, and Bank stock worth about 21,000*l.*, with a 2,000*l.* annuity, having yet twenty-two years to run, constituted its sole property. The "Foreigners' Guide to London," 1720, quoted by Timbs in his "Curiosities of London," contains a curious description of the "water engine of a new invention" at York-buildings, by the Strand. The Thames water was carried through wooden pipes up to a reservoir in Marylebone Fields.

whence the supply reached what was then the west end of the town. The octagon tower, of wood, and some 70 ft. high, stood a few yards south-west of the Duke of Buckingham's now shamefully-neglected water-gate,—York stairs, at the foot of York-buildings (Buckingham-street). Some good views of it may be seen at the British Museum and the Guildhall Library. The Crace Collection, in the Museum, has several views, including one of 1740; a print showing its construction, of 1790; T. Malton's drawing, of 1797; and a water-colour, by Malcolm, of 1797.

NO history of the steam-engine can be accepted as complete which gives no account of the particular machine mentioned above. Popularly known as "the York-buildings dragon," it was constructed by Savery,—whom, as an engineer, the Cornish miners dubbed "captain" after their wont,—not earlier than 1712. The movements, doubled in each dimension, he copied from those of the engine which, in that year, he had built for Mr. Balle, at Campden House, Kensington. It is often mentioned in Mr. Robert L. Galloway's book upon "The Steam Engine and its Inventors," London, Macmillan & Co., 1881. Mr. Galloway cites other writers. Thus, in his "Experimental Philosophy," vol. ii., fol. 466-7, Dr. Desaguliers says, "I have known Captain Savery at York-buildings Waterworks, in London, make steam eight or ten times stronger than common air"; and Bradley in his "Ten Practical Discourses," &c., Westminster, 1727, fol. 33, speaks of "the attempt of raising water at York Buildings by the engine for raising water by fire, where Captain Savory, the inventor of it, was concerned in the setting of it up." Dr. John Allen in his "Specimina Ichnographica; or, A Brief Narrative of Several New Inventions and Experiments," London, 1730, fol. 14, refers to its cost, "the article of coals is at least 1,000 pounds a year"; it is the "noble engine" which Switzer describes in his "Hydrostatics and Hydraulics" of 1729, and is considered by many to be the very engine which is figured and described by De la Motraye, 1732. He, though, says the new fire engine is placed between the water-engines of London Bridge and another towards Chelsea, and may refer to a later one in the "Water House" lower down, by Queenhithe, as delineated, in Visscher's view of 1616. Mr. Galloway observes that Savery, who died before 1717, adhered to his own invention even after the successful introduction of Newcomen's engine. Nevertheless, the account in the "Foreigner's Guide," *ut supra*, seems to relate to an atmospheric engine, with beam, &c., upon the improvements made by Newcomen and Cawley. Savery's machine was not used here after 1731, though preserved for awhile as a curiosity. It could lift water to about 64 ft. above its own height; but its working was capricious, and the mechanism often got out of order. The fuel proved expensive, and the sea-coal smoke caused great annoyance to the inhabitants around. These waterworks probably engaged the attention of Peter the Great when lodging in Buckingham-street, for in 1717 or 1718 Desaguliers built one of Savery's engines in the Czar's garden at St. Petersburg.

IN virtue of the assignment of the consolidated actions of Carden *v.* Albert Palace Association (Limited), and Fraser *v.* the Same, the Albert Palace at Battersea is to be sold by auction on June 7 next. The building includes the main structure of iron and glass, with façades of stone and brick, a concert-hall containing the great organ,—formerly the property of Mr. W. Holmes, at Primrose Hill,—an aquarium, dining-rooms, &c., the whole with the grounds covering 10 acres. The Palace was opened by the Lord Mayor (Sir Robert Fowler), accompanied by the sheriffs, in May, 1885, with musical performances and the singing of Mr. A. J. Caldicott's Dedication Ode. For the edifice itself were used, as we are informed, the stones of the old King's Bench Record Offices at Westminster, which stood in front of the Law Courts built by Soane, as lately replaced by Mr. Shaw Lefevre and Mr. Pearson's additions along the western side of Westminster Hall. Here, in December of that same year, was exhibited a loan collection of paintings illustrative of London in the past, together with portraits of some actors known only by tradition to our generation. The pictures, some 100 in number, were lent by the Archbishop of Canterbury, Messrs. Martin Colnaghi, J. Sellar, Henry Graves, the Rev. W. J. Blews, and others. The artists represented comprised Hogarth, "A Midnight Modern Conversation"; Paul Sandby, Samuel Scott, Richard Wilson, A. Callcott. R. Vanderbank, together with the modern painters, Mr. Townley Green and Mr. G. R. Clarke.

IN 1823 York Gate was repaired and re-roofed and its railings renewed at an expense of 300*l*. Timbs tells us "the whole was in 1854 in a ruinous state." Before its stones go to share the fate of those of Burlington House Colonnade, decaying in Battersea Park, it may be pertinent to ask whether we can decidedly attribute this beautiful relic to Inigo Jones? For, by the courtesy of Mr. Wild, curator, we have just been enabled to examine the account-books of "Nicholas Stone Senr. Esq. Master Mason to King James & King Charles the First," formerly belonging to Vertue, and now preserved in the Soane Museum. On a foolscap sheet, in the larger book, is a schedule headed, "Some of the most Eminentt Workes that my Vncle Mr. Nickcolas Stone Senior did in England in Holland & Scottland." At the end of the list is, in another hand, "writ by Charles Stoakes." One item runs as follows:—"The Water Gate att Yorke house hee desined & built & the Right hand Lion hee did frontting the Thames. Mr. Kearne a Jarman his brother by maring [marrying] his sister did the Shee Lion." (This is curious, for each lion, having a mane, is a he-lion.) That here is no attempt to credit Stone with more than his due appears from the next preceding item:—"Thatt Noble Portico hee built at the west End of St. Paules Churche Mr. Inigo Jones his desine & Mr. Stones Care in performing y‘ worke." With these two entries should be read another, all punctuated at a later date:—"The Staires and Water gate att Sommerset House Hee made the fingure [*sic*] Nilus & Mr. Kerrne the Other."

THE so-called "Anglo-Danish Exhibition and Fête," now open at Kensington in the gardens behind the Albert Hall, will, we hope, be as successful as its promoters desire, seeing that it is being held in aid of a charitable object, namely, the rebuilding of that deserving institution the British Home for Incurables. It is, in truth, more of a fancy fair or bazaar than an exhibition, in the usual sense of the word. The long "permanent" brick galleries (or what remains of them now that the site for the Imperial Institute has been cleared) flanking the sides of the Horticultural Gardens, and the two quadrants connecting these galleries with the conservatory, are filled with stalls or shops for the sale of toys, perfumery, jewellery, gloves, hosiery, clothing, furniture, nick-nacks, and fancy articles generally, which are, of course, interesting in their way. But the main attraction of the place will be the *al fresco Fête*. With the exception of two or three small iron buildings (one used for *tableaux vivants* illustrating Hans Christian Andersen's Fairy Tales), and the picturesque cottages and other buildings forming the Danish village, with their picturesquely-clad inmates, the gardens are given up entirely to the *Fête*, and appear to be larger than during recent exhibitions, all the temporary buildings for which have been cleared away. At the south end of the gardens is a cleverly-painted bit of scenery representing snow-clad hills and mountains. A "switch-back railway" runs in front of, and is partly concealed by, this scenery: it is, of course, termed "The Arctic Mountain Railway." There is also a tobogganing slide, reached by a staircase in an octagonal tower. The grounds are prettily illuminated at night, and the two kiosks are occupied by the bands of the Grenadier and Coldstream Guards. It is noteworthy that neither in the grounds nor in the buildings is electric lighting used. The illumination indoors is effected by gas, partly by Albo-Carbon and Wenham lights, and out of doors partly by gas (Sugg's flat-flame burners and Wenham lights being used), and partly by thousands of small coloured "fairy lamps," many containing small gas jets, and many others containing the ordinary domestic "night-light." We have no doubt that this *Fête* will be a very popular resort during the next five or six months.

IN a "Note" of May 5th last we adverted to the forthcoming sale at auction of Lady Suffolk's villa, Marble Hill, Twickenham; a later home, by the way, of another royal favourite, Mrs. Fitzherbert. The neighbouring property of Strawberry Hill is again in the market also, the auction to take place at the Mart on July 4th, by order of the late Baron de Stern's executors. The entire estate, having a frontage to the Thames, and including gardens, meadows, three cottages, and stabling for twelve horses, extends over about 50 acres. An account of its projected sale five years ago is contained in the *Builder* of June 23, 1883. Horace Walpole (Lord Orford), who died on March 2, 1797, devised Strawberry Hill, with 2,000*l*., to the Honourable Mrs. Damer for her life on condition she should keep it in repair. Mrs. Damer was the artist of some pieces of sculpture in Walpole's collection here. She subsequently vacated the house in favour of Elizabeth, Countess of Waldegrave, grandmother to George, seventh earl of that title. Frances, *née* Braham, widow to the seventh earl, will be remembered in association with Strawberry Hill, and for her efforts to restore to the house some of its pristine contents, which were dispersed by the sale of 1842.

ARCHITECTURE AT THE ROYAL ACADEMY.—IV.

1796, "Batsford, Gloucestershire"; Messrs. Ernest George & Peto. Another of these antique-looking weather-stained modern houses, very pleasing and quiet, with its long level lines of string-courses, and the small windows with segmental-headed lights resting on the strings; these small windows are charming in architectural effect, but suggest the idea of a little deficiency of light in some of the rooms; however, there is no doubt many modern houses err in the way of a superfluity of window space, leaving no sense of repose, so perhaps a protest in the other direction is desirable. The plan is appended, with sitting-rooms and ball-room opening irregularly out of the hall; the planning of the principal rooms is varied and picturesque in itself, but the smoking-room door opening direct on the central hall would convey the smell of smoke over a great part of the house (if any of the inmates happen to object to that), and the offices corridor, running in one straight vista from a door in the centre of the hall wall down to another door into the yard, cannot be said to be a desirable arrangement for that separation between the two sections of a dwelling which is generally preferred in this country.

1798, "Choir, Christ Church Cathedral"; Mr. T. Maclaren. A very well-drawn delicate pencil sketch (slightly tinted) from a difficult point of view, looking obliquely across the choir.

1799, "The Western Portal, Rouen Cathedral"; Mr. Arnold B. Mitchell. A drawing nearly in elevation, but with the effect of perspective just given by the base-line and the treatment of the shadows; part of the building is only "blocked in." The effect, in the black-and-white manner which the author has made his own, is admirable as a picturesque representation of architecture, and apparently obtained with very little labour in proportion to the result.

1800, "Entrance to New Buildings at Eton College"; Mr. Arthur W. Blomfield, A.R.A. This is purely an "architectural draughtsman's" drawing, hard enough in effect, but showing the architecture adequately. The gateway, in the angle of two buildings, is an ogee arch with panelling over, and a canopy and statue rising from a corbel on the apex of the crocketed hoodmould; two windows above, on either side

of the canopy, repeat the design of the panelling below. The adjoining buildings suggest the idea of their being respectively a Hall and a Chapel, from the treatment of the windows, but there is no plan to give any clue to the motive of the buildings. The details generally are of Perpendicular Gothic character, with a large traceried window to what we have supposed the chapel, and flat-headed mullioned buildings in the other building. General effect a little wiry, perhaps owing to the character of the drawing.

1802, "Board School, Lavender Hill"; Mr. T. J. Bailey. A loyal continuation of the style which the former School Board architect, Mr. Robson, formulated for these buildings. The plan appended does not inform us whether the "Hall" is repeated on each floor; if it is, the window treatment here, in stages between pilasters, is all right; otherwise, it is deceptive. The building is a good example of a pleasing architectural effect and grouping obtained in an inexpensive way, almost without ornament, and in accordance, apparently, with the requirements of the plan. The manner in which the surface of the brickwork is treated, so as to give a natural variety of tone and surface, without overdoing it, is creditable to the taste and "touch" of the draughtsman.

1803, "South Porch, St. Mary's, Portsea"; Mr. Arthur W. Blomfield, A.R.A. A pencil drawing, exceedingly clean and delicate in execution; the rich detail of the porch is most carefully lined in with a fine pencil; the drawing is nearly as precise in style and execution as No. 1800, but work of this sort in pencil produces a different impression, it has not the hard and toneless character of ruled ink lines. The drawing shows part of a Late Gothic church with a clearstory of two-light Perpendicular windows, both nave and aisle battlemented; the treatment of the aisle wall is very plain and massive, giving the more effect to the porch with its rich panelling and large heavy pinnacles. It makes a very pretty corner of modern Gothic work.

1804, "Brasenose College, Oxford: Interior of New Reading-room for Undergraduates"; Mr. T. G. Jackson. This is at all events a light room, or shown so in the drawing, a good pen drawing showing the touch of a well-known draughtsman; there are two large segmental headed windows on the right with a bookcase between, and an ample fireplace opposite diversified with three of the favourite broken-pedimented gables in a row, with three panels carved with some device or design under them, not easy to see. The cornice of the overmantel is carried round as the cornice of a simple panelled wainscot, connecting the whole together.

1805, "Entrance Hall Decorated with Pictures from *Punch*"; Mr. T. W. Hay. Apparently the pictures from *Punch* are large coloured copies; a curious and not to our mind a happy fancy in decoration. The general treatment is rather *à la* Pompeii, with a dark wall (black and dark red) below, and lighter red square panels above, in the centre of which the *Punch* pictures play the part of the figures which usually form the centre to the panel in Pompeian decoration. Between two marble pilasters is a mirror flanked by more *Punch* pictures. The frieze is in lighter tones with festoons.

1,806, "New Church of St. Andrew, Wandsworth"; Mr. E. W. Mountford. We published a lithograph of this drawing in the *Builder* for May 12. As a design for a necessarily cheap church it is successful, and the architect has managed to get a certain degree of dignity in the west-end elevation by the large buttress masses with turrets rising from them and the deeply-recessed arch between; and the small flêche is pleasingly treated. As a pen drawing it is a very good specimen of draughtsmanship.

1807, "Four Small Country Houses"; Messrs. Ernest George & Peto. These four views in one frame are very good, as showing the extent of variety of expression and effect that may be got in houses of this class, merely by arrangement of windows, string-courses, &c. All these small houses are quite distinct in character, though of quite a plain and unpretending description. In the first, "Country House at Champion Hill," the small clock turret rising out of the roof, and the little projecting attic bay windows in the plastered gables, are among the characteristic features; in "Rosehill, Henley," there are bold projecting eaves, which seem half supported by a square bay rising to the under side of the eaves; the gables over this line are plastered; the other two have each their own characteristic features. In the drawing they are all made to look like old houses, it is true, but we presume this deception cannot be entirely carried out in execution.

THE GREEK AND ROMAN STAGE.

THE fourth of Sir C. Newton's lectures * on "The Greek and Roman Stage," delivered at University College on the 11th inst., dealt with the State control of plays at Athens. Before petitioning the archon in office to grant a choros, the poet was required to submit a trial performance, of the nature of which we know nothing; we know, at any rate, that a great reputation was not sufficient to guarantee success in such an application; for it is certain that on one occasion even Sophokles was passed over in favour of an obscure poet. The poet then was responsible for its entire control and training, a task carried out by him either personally or through teachers whom he appointed. Aristophanes, as far as we know, only trained the choros himself in three of his plays; others were brought out under different management, and, in some of his earlier pieces, under the name of another poet, Callistratos, who not only undertook the responsibility and received the substantial reward, but had to bear the brunt of the attacks directed by Kleon against the presumed author of "The Babylonians." Even after his success was assured, he sometimes reverted to this practice, possibly from distaste for the troublesome task of *didaskalia*; in the "Wasps," for instance, which was brought out by Philonides, we find lines which may be absolutely referred to Aristophanes; hence it is probable that he undertook the choros himself, and delegated the training to others.

In the reproduction of old plays, the habit seems to have prevailed to a great extent of altering the texts; so much so that Lykurgos ordered an authentic copy of each piece to be preserved for comparison in the State archives. In unauthorised representations, however, the practice must have still continued, and to this fact we probably owe the interpolations of the players which are still retained in our texts. In the third century Ptolemy Euergetes borrowed the standard copy for the Alexandrine Library, leaving a deposit of fifteen silver talents; he subsequently induced the Athenians to keep the sum deposited, providing them with copies of the texts and retaining the originals.

Shortly before the actual bringing out of the plays at the Dionysiac festival in March, a preliminary function took place, called the *proagon*. This seems to have been, not as was supposed, a rehearsal, but only a festive act which ushered in the real trial: poets, actors, and choros would appear, clad in festal costume, before the public assembled for the sacrifice to Asklepios, which took place on that day; not in the Periklean Odeion, but in the Odeion at the Enneakrunos. This function was probably developed out of the custom which prevailed of announcing the title and author of the piece immediately before it was performed.

In early times, the statue of the god had looked down, through the open doors of his temple in the Lenaion, upon the dithyramb and oldest form of plays. At a later period, in order that he might not miss the more elaborate development of these plays, his statue was conveyed from the temple in the Lenaion to the *orchestra*, where it was placed, perhaps near the central place of honour assigned to his priest, or possibly nearer the *thymele*. We do not know which of his statues would be chosen, whether the chryselephantine statue by Alkamenes, or the time-hallowed archaic image. The proceedings probably opened by a solemn sacrifice of little pigs for the purification of the people, at which time the oath was administered to the judges. The method of appointment of the judges is involved in a good deal of obscurity, but it was probably conducted somewhat as follows:—Some time before the Dionysiac festival, the senators selected a number of persons competent to be judges, and the choregi chose each out of their tribe double the number of persons required. These names were cast by each tribe into a separate urn, which was sealed and handed over to the treasurers to be deposited probably in the opisthodomos of the Parthenon. On the day of the performance the urns were set out on the stage, and the presiding archon drew a name from each urn for the first *agon*, so that each of the ten tribes was represented: the committee thus formed were sworn to exercise their judgment truthfully and impartially; at the end of the contest, during which they probably had an appointed set of seats, they entered the names of the competitors in a register, in the order in which they considered them worthy to be placed; and the victor was proclaimed by a herald, and crowned on the stage by the archon. The performance probably opened and closed with a libation to Dionysos in the *orchestra*, offered at the summons of the herald by the poet with his choregi. Immediately after the last day of the Dionysia, a public assembly was held in the theatre, at which business connected with the festival was transacted, the officials receiving praise or blame according to their merits, and complaints being formally lodged against unfair awards of the judges. The details of the contest, with the names of those who took part, were officially registered by the archon in the state records: in the flourishing period of the drama these lists were engraved on marble and set up in the sacred precinct of Dionysos, and it was by a study of these marbles, together with the dedicated choregic monuments, and by research in the archives, that Aristotle was enabled to prepare his work on the "Didaskalia," which was of great service to scholars in later times.

In the early times of the Great Dionysia, it is probable that two days sufficed for the festival; the first day would be occupied by the procession, the cyclic choros, and the banquet, the second day being set apart for the tragic contest. When the satyric drama detached itself, and a lively afterpiece followed the regular drama, a third day was added, so that each poet might bring out two pieces on each day. Moreover, in order to give time for the comedies, which in the Periklean age were certainly given on each of the three days, the tragic tetralogy must have been abridged, and hence it is that the tragedies of Æschylos are shorter than those of Sophokles and Euripides; the duration of the Dionysia was thus probably from the 10th to the 13th of the month Elaphebolion, which corresponds to our March–April.

The audience at the dramatic representations at Athens consisted of the citizens, the class of resident aliens called "Metoikoi," and foreigners visiting Athens. It is uncertain whether women were admitted or not; in Imperial times at any rate, when Greek manners had been considerably modified by Roman influence, priestesses, and probably other female functionaries, were authorised spectators, as we know from the inscriptions on the seats allotted to them. In the Athenian theatre no fewer than sixty-seven seats, on the lowest step next the orchestra, were reserved in this way for special officials. This distinction, called *proedria*, was granted to public benefactors, the generals of the State, the orphans of those who had fallen in war, the ambassadors of foreign States, and perhaps their citizens collectively; also the Athenian archons, the priest of Dionysos Eleuthereus, and other priests, priestesses, and ministers of religion had reserved places.

In the Elgin Room at the British Museum may be seen the casts of two richly-ornamented marble chairs, which were found *in situ* in the Athenian theatre, and which, as an inscription on the front tells us, were reserved for the priest of Dionysos Eleuthereus, and a general.

The portion of the theatre set apart for the Senate (*boule*) was called *bouleutikon*, that for the *ephebi* in like manner *ephebikon*; in some cases, as we know from inscriptions, there were special seats for the young, or for the actors themselves. The ordinary seats were not numbered, but at Athens were arranged according to the tribes, who, when Hadrian was Agonothetes in A.D. 126, dedicated to him twelve statues, one for each of the *cunei*, or blocks of seats. In confirmation of this system, leaden counters in bone, ivory, and lead have been discovered, marked with the names of Athenian tribes and evidently used as tickets or counterfoils for the theatre.

These tickets they probably bought at the door, in the time of Demosthenes, for a sum of two obols, or threepence each, and examples are to be seen in the British Museum. The ordinary Athenian would go very early in the morning, armed with a cushion for his hard seat, and a hat to keep off the sun in the usual

* For reports of the preceding lectures see pp. 318, 341, and 361 *ante*.

cases where awning was not provided: he would remain in the theatre all day, probably in order to save the payment for re-admission, and during this time he would regale himself with sweetmeats, dried figs, and walnuts, which he brought with him, or which the poet distributed, wine being handed round probably at the expense of the choregos, and in honour of Dionysos. In spite of the solemn character of the festival, the demeanour of the public during the comedies seems to have been sometimes irreverent and even uproarious, so that the policemen, *rhabdouchoi*, who were stationed on the *thymele* under the command of the archon, had occasionally to use their sticks freely. Among the signs of an ill-bred man noted by Theophrastos is that of applauding after others have left off applause, hissing when others approve, and being left asleep when others have gone away. The spectators were very impressionable, easily moved to praise or blame, and in pathetic parts to tears. The *encore* after a favourite song was of frequent occurrence; but on very bad actors corporal chastisement was inflicted.

THE ARCHITECTURAL ASSOCIATION:

NOTES OF A SKETCHING TOUR IN BELGIUM.

THE last ordinary meeting of this Association for the current session was held on the 18th inst., in the meeting-room of the Royal Institute of British Architects, Mr. John Slater, B.A. (President), in the chair.

The following new members were elected, viz,, Messrs. R. A. Crowley, M. Garbutt, and W. S. Taylor.

Mr. T. E. Pryce (Hon. Sec.) announced that the Association Travelling Studentship had been gained by Mr. D. J. Blow; and the second prize by Mr. R. D. Warry, the Committee adding that Mr. Warry's drawings were admirable. It was also stated that the Aldwinckle Travelling Studentship had been gained by Mr. H. V. Lanchester.

Mr. F. R. Farrow (Hon. Sec.) announced that the clerk of the Painters' Company had written stating that their Travelling Studentship had been awarded to Mr. James West, of the West London School of Art; that the second place would be a mark of commendation to Mr. Finchett, of the same school; and the third place of commendation to Mr. E. Osborne, of the Architectural Association.

Votes of thanks were passed to Mr. Bentley, the architect, and to the Rector of Beaumont College; also to Mr. Henry Stock, the architect of the Essex County Lunatic Asylum, Brentwood, in connexion with the late visits to those buildings, reported in our columns recently.

Mr. W. Burrell (Hon. Librarian) announced several donations to the library, votes of thanks being passed to the different donors.

Mr. A. C. Bulmer Booth proposed a vote of thanks to the President for the very able manner in which he had occupied the chair at the sessional meetings, and the great amount of attention he had given to the interests of the Association (cheers).

The resolution was duly seconded and carried by acclamation.

The Chairman returned thanks for the very hearty way in which the vote had been received. He would always look back with feelings of the greatest pleasure to his term of occupying the chair of the Association.

On the motion of Mr. Max Clarke a cordial vote of thanks was passed to Mr. W. Burrell on his retirement from the office of Hon. Librarian.

The Chairman announced that the annual dinner would take place at the Holborn Restaurant, on Wednesday, the 6th prox., and that applications for tickets should be sent in before the end of May.

Mr. A. H. Hart (the Association Travelling Student for 1887) then read the following paper, giving "Notes of a Tour in Belgium":—

Having the good fortune to be elected the Travelling Student of the Architectural Association, the question at once was, Where shall I go? Some of my friends recommended me to stay in England, and for some time I was unable to make up my mind how I could best use the privileges of the Studentship.

I do not regret the choice I made. I had seen good specimens of English work, and was anxious to sketch on the Continent, where all would be fresh to me. English work is always more accessible, and as I had six weeks before me I did not mind the additional journey. With the aid of my friends I got together a good deal of information about the part I had determined to visit, which lay in the north-eastern district of Belgium. I may say here that the railway system is a most complete one, and that travelling is cheaper in Belgium than it is in England, and also that the hotel expenses are decidedly lower.

With the information I had obtained I was enabled to visit some towns and villages very little known, and I hope to be able to give you some idea of what there is to be seen in these places. My object, however, was not to exclude anything that was worth seeing, but rather to see everything that lay in my district.

I started from London on Saturday, June 18, 1887, and arrived at Bruges the same evening. This charming old town, which preserves so much of its Mediæval character, is now a very quiet place, whose present population is only one-third of what it was in 1456, when at the height of its splendour. It is said that the trade of Bruges was so great that a bell was ordered to be rung at the time of the opening and closing of the various workshops to warn mothers to keep their children within doors, and so prevent any accident happening to them in the throng of the artisans. The buildings bear witness to its former trade and wealth. Here, as in other Belgian towns, the citizens and merchants seem to have vied with each other as to who should erect the finest buildings. There are many Gothic houses in Bruges. In one class the mullions of the various windows are continuous, forming, at the floor levels, panels with traceried heads. This front is perfectly in keeping with modern requirements. At the Hotel Grutuuse, which faces the canal, and can only be seen from a narrow court on the opposite side, the front is treated in a similar way, but the whole is enclosed under one huge Gothic arch, with cusping of two orders in the head. This design is not so satisfactory; it gives the appearance of one large window within a gable.

There are a great many examples in Bruges of later houses with the stepped gable,—a feature introduced by Spain during the time of its supremacy. Many of these houses have square-headed windows with a semicircular tympanum over, which is often filled with good carving and sculpture.

The very elaborate Hôtel de Ville, and the beautiful belfry tower, are other attractions of Bruges. The belfry had originally a *flèche*, which has not been rebuilt since its last destruction by lightning. Perhaps, the fine octagon which forms the upper stage of the tower looks better without than it would with its *flèche*. The height of the tower is already thought to be quite out of proportion with the rest of the building, but this is explained by the fact that the tower was probably the first built, and the Halles themselves added afterwards; this may also be the reason that the tower is not quite in the centre of the building.

I am not going to attempt to describe all the good work in Bruges. Even if I were able to do so it would prevent me speaking of other Belgian work which is not so well known. I will, therefore, only say a few words of the churches, of which this city possesses so many. I should mention here that Bruges is situated in a district renowned for its good brickwork, and I believe one could find in such outlying towns as Damme, Heyst, Lisseweghe, Ghistelle, and Nieuport, a rich store of old brickwork. Unfortunately I was only able to visit one of these,—Damme, of which I will speak later. Many of the churches of Bruges, then, are of brick. This applies to the exterior both of the cathedral and Notre Dame, of almost equal size. The cathedral has a very poverty-stricken appearance from the outside, with an enormous tower, whose upper and ugly part is quite modern. The interior contains same good early Gothic work. The very beautiful colour decoration of the choir was designed by M. Bethune, whose good work in Belgium is well known. The tower and spire of Notre Dame are of brick, but the spire being red does not produce a pleasing effect with the old brown work of the tower and the rest of the church. The Church of St. Walburga is a Renaissance building, with an extremely good west façade of a yellow stone. The interior is most imposing. A very beautiful dwarf altar-screen of white marble extends right across the church, and is an exquisite example of Flemish Renaissance work. St. Jacques is a plain church, but contains good work. Massive columns of grey stone support moulded red-brick arches, and the tower arches, also of red brick, have a lower rib of the same grey stone, and the effect of the two colours is excellent. The triforium has richly moulded lancet openings. The woodwork in the Carmelite church in the Rue d'Ostende is particularly good.

With such attractions, not to mention the picturesqueness of the town, with its many canals and bridges, I found a week by no means too long a stay in Bruges. As already mentioned, I walked to Damme whilst at Bruges, a village about four miles north-east along the canal. The picturesque fifteenth-century Hôtel de Ville, now used as an inn, has the remains of some beautiful work, including two or three well-moulded chimney-pieces. The church at Damme is interesting, being built almost exclusively of brickwork. This applies even to the tracery of some of the windows. It contains some of the finest Renaissance wood carving I saw in Belgium.

Leaving Bruges for Ghent, I was struck with the contrast between these two towns. Bruges seemed as a dead city when I entered this busy place, which has maintained its celebrity for manufactures. In the seventeenth century Ghent was one of the largest and wealthiest cities in Europe. This is confirmed by the store of rich old buildings remaining, such as the Gothic houses on the quay and the Hôtel de Ville. This latter, which is undergoing restoration, has a beautiful Flamboyant façade. The east front was built about a hundred years later, and is a heavy Renaissance piece of work, not strikingly beautiful. At the Hospital la Bylock, an institution for aged men, there is a large thirteenth-century room, perhaps originally the dining-hall. It is a most complete example of thirteenth-century work, with its windows, its chimneypiece with most refined details, the wooden vaulting springing from stone shafts supported upon very beautifully-carved corbels, and the mural paintings at each end. A large portion of the room has unfortunately been divided off to about half its height to form another chamber.

The Cathedral of St. Bavon has a very fine interior. The choir has recently been scraped of its whitewash, revealing the original colours of the stone. The main arcade is of a species of marble of a dark grey colour; the triforium is of white stone, and the vaulting of a stone of a fine red colour, which looks very much like red brickwork. This colour effect, which until quite recently was hidden by the whitewash, is evidently part of the original design. I believe it is proposed to substitute for the cumbersome black-and-white marble altar a restoration of the simple Gothic one known to have originally existed. The belfry-tower of Ghent has by no means been improved by the addition, during this century, of an iron spire. The gilt brass dragon on the summit is of considerable interest; it is said to have originally adorned the cupola of a Greek church in Constantinople, and taken thence by the Crusaders. It was then placed upon the belfry-tower at Bruges, but ultimately captured by the men of Ghent and placed upon their own belfry.

I was induced to leave Ghent earlier than perhaps I should otherwise have done by the bad smells in the town, which were not rendered more tolerable by the intense heat. I left, after a stay of two days and a half, for Alost, a town about seventeen miles south-east of Ghent. I was there informed I was the first English visitor to the hotel that year, and this seemed to be the only one in the town. Alost contains a fine church and a very interesting Hôtel de Ville. The church, dedicated to St. Martin, is a rich example of late fifteenth-century work. It has never had the nave, but in its present state is a very large church. It was probably built for a cathedral. The exterior, which is very pleasing, has a gallery with a beautiful pierced balustrade running through the buttresses and supported between on arches springing from the buttresses. The colour of the exterior is a rich brown, which greatly adds to the beauty. There is some good late ironwork at the entrance to one of the chapels. The Hôtel de Ville is said to be the earliest in Belgium, dating from the beginning of the thirteenth century. This, however, only refers to the east side, in which are the original windows. These have shafts with sculptured caps, and the pointed arch over, but at the springing level the stone runs through straight, forming a solid tympanum, and

allowing of straight-headed casements. The date of the rest of the building is 1465. The tower, which stands at the south-west angle, is plain and square up to the clock, above which there is a beautiful traceried balustrade, supported on a series of projecting mouldings, from which spring gurgoyles, three on each side of the tower. This balustrade is not square on plan, like the tower below, but has the angles taken off, forming an irregular octagon,—a sort of compromise between the square below and the octagonal turret, which rises from this balustrade. In the openings of the turret are hung the bells, a picturesque arrangement, but the sound is very poor, whether from the method of hanging or the quality of the bells I do not know. The octagon has a high roof studded with dormers. It is known that Alost was the first town in Belgium to have chimes, which were, for a long time, thought to have been invented by an inhabitant. I was told in the town that the belfry was a feature introduced from China, and that the system of hanging the bells right in the openings themselves, as they are here, was the practice in the East. A thorough restoration of the Hôtel de Ville was proceeding when I was at Alost. The main roof has been studded with dormers, which did not exist before, and in the place of the cupola-like erection over the main gable, which was a late addition, they have erected a *flèche*. Perhaps a better general outline would have been produced had they removed the cupola and left the gable quite plain.

Adjoining the Hôtel de Ville is a row of old houses, which date from 1620. They stand over the footway upon a stone colonnade, and have mullioned windows and shaped gables. They are of red brick and stone, but the brickwork has been painted an unpleasantly bright red, with the joints white. This wretched treatment is even applied to the ornamental wrought-iron heads. A photograph taken before this decoration took place shows the brickwork whitened.

I left Alost for Malines, or Mechlin, which, apart from its noble cathedral, was one of the most interesting towns I visited. The huge unfinished tower of the cathedral already rises to a height of 324 ft. A drawing of this tower, showing the complete design, the spire rising to the enormous height of 640 ft., appeared in the *Builder* for July 3, 1886.* The original design is said to be still in possession of the town. In its present state it is a huge pile, and seen rising above the old houses, or as it appears at the end of many of the ancient streets, it is picturesque and imposing. It is quite the feature of Malines. The town contains a store of good domestic work. One of the best houses is now used as the Music Academy and Mont-de-Piété. It was formerly a large town mansion; its date is 1504 to 1507. The south wing is very much altered from what it was originally. That portion of the ground-floor recessed behind the colonnade is quite modern, there having been formerly an open court under the house, connecting the outer and inner courtyards, and on the upper floor there was no balcony in the original building; the wall behind the colonnade which now in part stands upon the modern wall beneath already referred to, and in part upon no wall at all, but upon a beam, and being in consequence full of settlements, is also modern, the upper colonnade having been originally filled in with brickwork, with similar window openings to those in the new wall behind. Notwithstanding these alterations, it is a beautiful building, and quite Gothic in character. As already mentioned, the south front has two colonnades, one above the other, with columns and well-moulded capitals of grey stone supporting four-centred arches of white stone, the walling being of red brickwork, banded with the white stone. Part of the upper colonnade is filled with a beautiful pierced balustrade of Flamboyant tracery. Above these two stories comes the roof, with a pitch even steeper than 60°. The tie-beams of the roof and the floor girders all have beautiful wrought iron heads on the outside of the brickwork, which are strictly constructional, preventing the wall from bulging. The stone staircase is interesting, with its windows and their original wooden shutters with ornamental wrought-iron fittings. The windows of the large room on the upper floor, which overlook the courtyard, also have all the quaint double-hinged shutters, such as may be seen at Antwerp, with their wrought-iron fittings. By these shutters the light can be nicely regulated; they are decidedly ornamental, and above all they effectually screen the room from the gaze of the windows in the opposite wing. This was probably their primary object, since they are only fitted to the lower half of the windows. Evidently they were not intended to exclude sunshine, as they are in a north wall.

One of the rooms on the ground-floor contains a fine fireplace, a measured drawing of which appeared in the "Sketch Book" of the Association; another little chamber has the remains of a very good fresco, in which a sumptuous banquet and a sea-scene can be traced. This is the more interesting since good mural paintings are rare in Belgium. I spent five days measuring this building. There are many other smaller houses in the town of equal interest, and also some good churches. St. Jean is interesting, with a somewhat remarkable but very picturesque tower, terminating in a group of slate pinnacles with a dwarf spire in the centre; the church contains some excellent oak carving. Having spent ten days in Malines, I left for Antwerp.

There was a glorious sunset when I arrived at Antwerp, with rich golden clouds in the deep blue sky, and I shall not easily forget the impression the beautiful cathedral tower made upon my mind, seen with such a gorgeous background. No wonder it has been a favourite subject with painters, by whom it has been introduced in several old works in the Antwerp galleries. After making a careful sketch of the tower and spire, I went to the top and tried to discover something of the construction of this wonderful piece of work. The main octagon has a vaulted roof, with very strong iron tie-bands at the springing, and upon this vaulting all the superstructure, which must be an enormous weight, seems to rest. I noticed the spire was tied and cramped in all directions with iron.

The Musée Plantin is almost too well known to need description. It is a rich fund for the architect. It is the house of the printer, Christopher Plantin, combining business premises with the dwelling-house, and is now as it was in the sixteenth century, with the original wall hangings, furniture, its oak shutters with their beautiful metal fittings, its pictures, many of which are by Rubens, as well as the implements used by Plantin in his trade. I did not stay long in Antwerp, as I was anxious to see several other towns, and had already been away from home more than a month.

My next town was Lierre, about ten miles from Antwerp, whose buildings are very interesting. St. Gommaire is a beautiful church of fifteenth-century date. Its interior is exceedingly rich, with a most elaborate Flamboyant rood-screen, covered with carving. The effect of the interior is fine, the vista not being too much interrupted by the screen. The nave columns are adorned with the Apostles. The church has a good tower, which is square up to the ridge of the nave roof, then a beautiful octagon, with traceried lights, rises above the pierced parapet. Upon this there is another octagonal stage, which is covered with a cupola, but this is modern, and of very poor detail. However, the general outline of the tower is pleasing. The flying buttresses are supported upon what is really the upright continuation of the divisional walls of the aisle chapel, and appear somewhat clumsy, from the great projection of these upright abutments, which, occurring close together, quite hide the clear-story windows from any oblique point of view. The porch contains a very good Gothic wall-arcade of most refined detail. The Hôtel de Ville of Lierre is a Renaissance building, from one side of which rises the ancient belfry, which is exceedingly picturesque. Its date is 1369, as is shown in metal figures on one of the walls. It is perfectly plain and square, without a string course or other feature, beyond a few square openings, and the clock, for a considerable height; then octagonal turrets are corbelled out over the angles, with graceful spire-like roofs, and from the centre rises the octagonal bell-turret, which again, is surmounted with a spire, with dormers. The whole of the octagon, as well as the spires, is covered with small grey slates; even the cusping to the octagon lights is formed with cut slate,—a very cheap way of obtaining an effect. There is a similarity between this belfry and the one at Alost already described. The Hôtel de Ville has a good carved wooden staircase, of late date.

My next town was Ærschot, a place not much visited by Englishmen. It contains a large population of very poor people, and a beautiful fourteenth-century church. It is built of a dark red stone, *pierre-de-fer*, found in the neighbourhood, and banded in parts with a white French stone. The lower portion of the tower is treated in this way, and I think the result is very satisfactory; the juxtaposition of the two colours of stone, besides its decorative effect, serves to display the very beautiful Gothic mouldings of the doorway, which has a semi-elliptical head. This striping, however, is only very partial; it stops directly above the doorway in the tower. It occurs again in the south transept, which is of very good design, with a turret staircase at the west angle, surmounted with a beautiful crocketed pinnacle. The church possesses magnificent woodwork; it has an upper and lower row of stalls behind the rood-screen and on each side of the choir, which include fifty *misereres*, every one of which is carved, the subjects being more quaint than refined. The low Renaissance altar-screen in the south transept is divided into panels carved with most beautiful pierced ornament: the confessional boxes in the church are also of late date, and are particularly fine, with delicately carved friezes, but the wooden figures are not so well carved as others to be seen in Belgium. At Ærschot I found the children particularly troublesome; when I was sketching the west door, they flocked round so as almost to darken the paper, and in spite of my entreaties (which I am afraid were not very intelligible) their intense curiosity overcame their politeness, so that I had to leave my work about every five minutes and make a gap through which I could see what I was trying to sketch. There is little of architectural interest in Ærschot beyond the church, but this was quite sufficient to make my stay agreeable.

I next went by rail to Sichem, and when I alighted from the train, seeing an hotel omnibus waiting I at once got in, thinking the town was, perhaps, some distance; but I soon found myself being driven to Montaigue, a small town about three miles away. I had put Montaigue down as the next place to be visited, intending to stop at Sichem *en route*, but being assured that there was no accommodation to be found at Sichem, I continued, making up my mind to walk back the three miles to see the church, which we passed on the way. I arrived at Montaigue on the Saturday evening. It is a most picturesque little town, with a stream running down the centre of the main street. One could get some good water-colour sketching in this neighbourhood. Although it is quite a small place, a very large number of visitors go there every year, which is proved by the astonishing number of hotels. Pilgrims from all parts flock to Montaigue to the church for religious devotion. It is an Early Renaissance building, of good design, roofed with a dome. It contains a most magnificent collection of antique gold and silver work, including a beautiful Gothic silver casket. Many of these treasures are adorned with large diamonds, Three silver pieces in the collection by no means inferior to the rest, are, I believe, English work; upon one of these I read "Guildford": they are two cruets and a dish, of rich Renaissance work. The collection of ancient vestments is also very fine; it contains some rich specimens of Mediæval needlework, including a beautiful vestment which belonged formerly to an Archbishop of Canterbury, who I understand went there as a penitent.

On going back to Sichem I found the church very interesting,—far more so than would appear from the outside. The interior is somewhat low, and of a dark brown-red stone. It has plain circular columns, with the arcade mouldings and the ribs of the vaulting dying into them. The apse is pleasing, and its central window contains a most magnificent example of Gothic stained glass, in perfect preservation. It is a three-light window, probably fourteenth-century, and the glass is apparently of the same date. Each of the two side divisions contains the figure of a saint, one on a dark green background, the other on a most lovely blue background; the central division contains a Crucifixion on a deep red, treated conventionally, with Gothic mouldings at the base of the cross. Each of the figures stands in a richly-canopied niche, below which there is an arcade, whose carving only is

* See the *Builder* of that date for description and drawing by Mr. H. W. Brewer.

coloured yellow, the remainder being left white. The two side arcades have a background of blue and red diapers, and the central one a coat of arms on a red and amber diaper. The tracery is filled chiefly with well-designed Gothic leaf forms, the predominating colour being amber. The detail of this glass is most beautiful. This precious piece of Mediæval art is much obscured by the Classic reredos, which stands immediately in front of it. It is the more rare, since early Gothic glass is said to be very scarce in Belgium.

The pulpit in Sichem Church is interesting; it is very like our Jacobean work, and is octagonal. It stands upon a ball round which a serpent is coiled, with an apple in its mouth,—representing, probably, the triumph of Christianity, symbolised by the pulpit, over the World, under the influence of the devil.

While at Sichem I walked to Averbode, a monastery a few miles distant, which is situated quite alone in the country, and is surrounded by beautiful gardens. This restored Renaissance building was mostly destroyed by the Revolutionists, but the church, with its beautiful tower, and some portions of the monastery itself, are the original work. The fifteenth-century gateway is very picturesque, with an ancient wooden gate outside, which turns on pivots, and when closed is sheltered by a slate roof running between the brick gate-piers. The monastery church has a fine interior, of great height, and is very imposing. The organ is said to be the largest in Belgium. One very interesting room in the monastery contains all the original furniture, wall-hanging, &c.

I left Sichem for Diest, where there is much to interest the architectural student. It is full of old houses, many with picturesque gables, and its churches are also good. The large church on the market-place is a beautiful Gothic building of the dark red local stone; its western tower, which has not been completed, has traceried decoration on the wall round the doorway. The interior is very imposing, especially so the view looking west, when one sees the Apostles on the nave columns and the fine organ in the distance, producing a grand effect. The pulpit in this church is a very good example of the rich wood Flemish carving, with life-size figures, quite detached, round the base. There are also some beautiful screens of oak, with brass balusters of the seventeenth century, the soft colour of the brass contrasting well with the oak. I believe the brass only needs polishing once a year. Another interesting church at Diest has a fine western façade of red brick and red stone; pilasters run up the angles supporting a fine-shaped gable; and there are inner pilasters to carry the decorative scrolls within the gable. A flight of steps leads up to the doorway, above which is a large window: both have semi-circular heads, the main cornice, from which the gable springs, running round the head of the window.

The entrance to the Beguinage at Diest dates from 1671, and is a good design in free Classic of a doorway with banded Doric columns and an entablature enclosing the semicircular opening under and supporting a niche with the Virgin and Child, the niche being adorned with well-carved garlands. The building under which the entrance runs has projecting eaves supported upon good carved-wood brackets.

I left Diest for Tirlemont, at one time a much busier place, where I saw two good churches and several old houses of interest. One of the churches which is on the market-place is T-shaped on plan, having no nave, and contains good moulded work. The Church of St. Germain, situated on the hill, is a very ancient structure, many portions of it, including the tower, being Romanesque. Romanesque buildings in Belgium are somewhat rare. I think this is the only one I saw during my tour. The tower has three semi-columns on each face, two near the angles and one in the middle. Above these is a sort of entablature, divided into three faces by horizontal strings, which break round thin vertical projections. Immediately above this comes a curious but rather picturesque slate clock-turret, which is, no doubt, a later erection. Between the columns on the tower are two-light windows with shafts supporting semicircular heads, which enclose a sort of tracery composed of a circle carried upon the round arches of the lights below. The interior of the church is very effective; the triforium openings are round-arched, with traceried balustrades, and there is a considerable gap of plain masonry between these black openings and the clear-story above, producing a striking effect. The mouldings of the vaulting and the arcade die into circular columns.

From Tirlemont I hurried to Louvain, in which I stayed a very short time, and can, therefore, say but little. The cathedral is well known. The lovely wrought-iron lamp in front of the screen by Quintin Matsys, the blacksmith and artist, the rich sixteenth-century organ, and the brass font with detached buttresses supported upon lions, were specially attractive. St. Margaret's is a dark building, in a dirty part of the town, but it contains most magnificent choir-stalls, with rich panelling over, carved with scenes from the life of Our Saviour in high relief. It is of very delicate workmanship, and in splendid preservation. St. Michael's Church, at Louvain, is a Renaissance building, with a most imposing west façade; the termination of the transepts as well as the apse is semicircular, and the effect from the inside is very good. The Hôtel de Ville is probably the finest in Belgium, and although it may be crowded with ornament, no one can deny that it is a lovely building. The Halles, now used as the University, contain some very beautiful Gothic work of the fourteeuth century. The round-arched arcade dividing the ground-floor, and supporting, by means of well-moulded corbels between the arches, the beams of the floor above, is of fine proportions, with very beautifully-sculptured capitals; there is also a crocketed doorway with an arcade over, in this building, of refined detail.

My last town was Brussels, where I arrived on the Saturday evening. This was the completion of my six weeks' tour, and, as I had determined to leave for England on the Monday, I had only two days in which to see Brussels, and had no time to sketch. Of course, I could not see the town properly in the time, but I shall not easily forget the buildings I did see. I went into the Cathedral of St. Gudule during the performance of mass, and the spectacle was the finest I have ever seen. Looking east into the grand old apse, with its dark triforium, the distant circular end appeared misty in the cloudy atmosphere of the incense; on each side of the choir were the lofty Gothic chapels with their enormous windows of magnificent Renaissance glass of a very dark brown on the right and a clear blue on the left. The procession was advancing down the central aisle, while hundreds of candles were burning, and at the entrance to the south apsidal chapel (whose dark glass made it naturally very gloomy) there was a mass of candle-light, beyond which everything looked black. This wonderful combination of effects was almost overwhelming, and it is impossible to describe the pleasure of contemplating such a scene, which displayed the architecture to the greatest possible advantage. The Renaissance glass in the two end windows of the transepts is also very fine, with boldly-arranged figures and architectural features, the whole on a beautiful background of blue. The ornament round the arch is of a rich golden yellow, which stands out very effectively against the dark soffit. The colouring throughout is bright, without the least crudeness. It dates from the middle of the sixteenth century.

The new Palais de Justice is seen to great advantage from many parts of Brussels, and from the park it looks particularly fine at the end of a long avenue of trees. I will not attempt to describe the building; most of us are acquainted with it. It is certainly most imposing,—a not unimportant attribute of a Palace of Justice.

On Monday, August 1st, I left Brussels for my return. This finishes the account of my rambles, which were as pleasant as they were instructive. I enjoyed exceptionally fine weather, having only one wet day during the six weeks, and I cannot think of Belgium without the sunshine. Of course it was very hot; but finding out, with the aid of a compass, at about what time a certain spot would be in shadow, I was generally able, by making my arrangements accordingly, to sketch from almost any point of view I wished. In drawing the Antwerp spire, I had, as the day advanced, to constantly shift my position, as I was depending upon the shadow of a small tree; this, at such a distance from the object, practically did not interfere with the perspective. Supporting an umbrella, no matter in what way, is always uncomfortable, and in windy weather impossible, and I think any expedient is preferable to burdening oneself with a sketching umbrella, which is hardly suitable for town work.

In conclusion, I will only mention the kindness and politeness of the Belgian people with whom I came in contact. They are sparing of no pains to show or explain anything to a foreigner, and it is a matter of great importance to a Travelling Student to meet with such well-disposed people.

Mr. Leonard Stokes, in opening the discussion, said that Mr. Hart seemed to be fond of making small sketches with little detail, but perhaps he had done so because the Belgian detail was not always of a refined character. The sketches were admirable as far as they went, but it was well always to take some dimensions and as many notes of details as possible. The grouping and general proportion of buildings was very important, but as bad detail on a well-proportioned building was a thing to be avoided, it was necessary to have notes of the details to refer to, books of reference not always being too correct in this respect. He proposed a vote of thanks to Mr. Hart, and added that it would be well if future students could make careful notes for their papers on the spot, as it would add immensely to the value of the papers.

Mr. W. Randolph seconded the motion. Bruges, which he knew well, had lost not only its cathedral and great cloth-hall, but its old houses had been shorn of many of their distinctive features, such as their picturesque towers and turrets. Mr. Hart had referred to some of the modern revived work, and one could hardly fail to be struck with the examples of new Gothic architecture to be seen in Belgium.

Mr. W. J. H. Leverton considered the old work was often studied too much from the archæological and antiquarian point of view. More time was often spent in studying the mere history of a building than in critically examining its architecture. The charm of many of the old buildings was given them by the hand of time, and if similar buildings were designed at the present time they would often be found quite uninteresting. For the same reason, a good many modern buildings which were not now thought greatly of would be much admired when they had acquired the charm that time imparts.

Mr. A. E. Taylor said that in looking at Mr. Hart's sketches a practical question had occurred to his mind. Those sketches represented six weeks of work, and he wondered how many of the members in a fortnight's holiday would do one-third of the number?

Mr. A. O. Collard complimented Mr. Hart upon his excellent paper and admirable sketches, and congratulated the Association on being the chief means of producing such results. The sketches could hardly be excelled, although he agreed with Mr. Stokes that a little more detail might have been shown. Although some doubt had been thrown on the quality of the Belgian detail, it was well to be exhibited as a warning to be avoided.

Mr. H. D. Appleton remarked that it had always seemed to him that the Flamboyant Hôtels de Ville of Louvain and Bruges entirely lost their scale and looked more like toy buildings than anything else. Mr. Hart was to be congratulated upon the notes he had taken of the materials of which the buildings were constructed, and he failed to see that he had brought the examples before them only from an archæological point of view. Archæology was not the study of architecture, but it was of the utmost value that the student should impress on his mind the dates of the work he was noting. The modern fresco work in many of the Hôtels de Ville was excellent. The Romanesque buildings were mainly situated in the eastern part of Belgium, notably in Liège and the surrounding towns. He could not help congratulating the Association on having got such good value for its money from Mr. Hart, and he only hoped they would continue to get as good results. In conclusion, he inquired whether Mr. Hart had taken any notes of the "Flemish bond."

Mr. F. R. Farrow said he had been greatly struck by the immense influence the Spaniards had exerted upon the Belgian architecture. Mr. Hart said that he was told in Alost that the manner of hanging the bells in the tower had come from the East, but it was in reality a Spanish custom. Nearly every church in Spain and Portugal had its bells hung in that manner,

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A HOUSE AT WEYBRIDGE.—Mr. Ernest Newton, Architect.

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A HOUSE AT WEYBRIDGE.—Mr. Ernest Newton, Architect.

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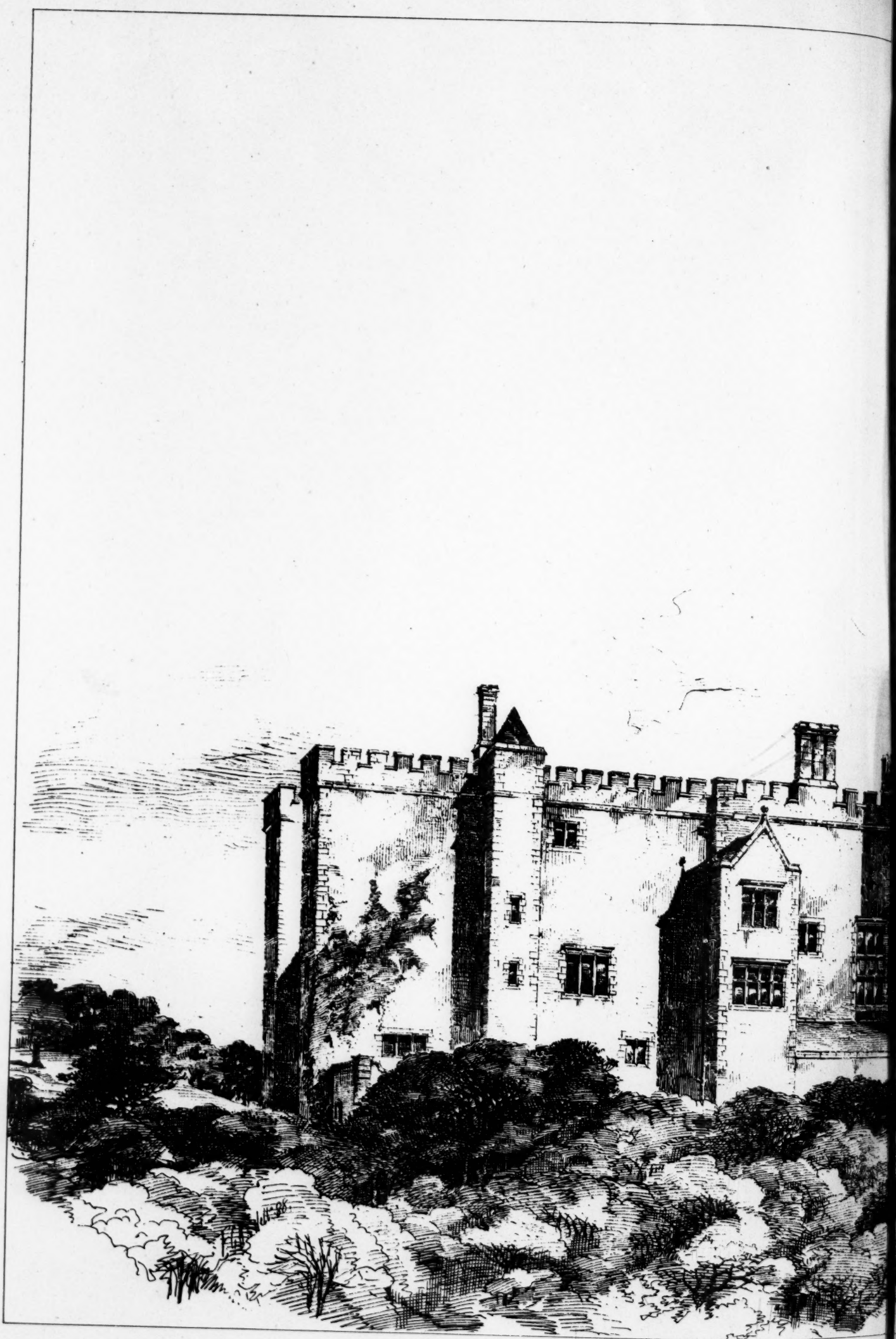
BANK PREMISES, ROSARIO, ARGENTINE REPUBLIC.—Mr. William Kidner, F.R.I.B.A., Architect.

THE PHOTO. SYNDICATE 22, MARTINS LANE, CANNON ST, LONDON, E.C.

BANK PREMISES, ROSARIO, ARGENTINE REPUBLIC.—Mr. William Kidner, F.R.I.B.A., Architect.



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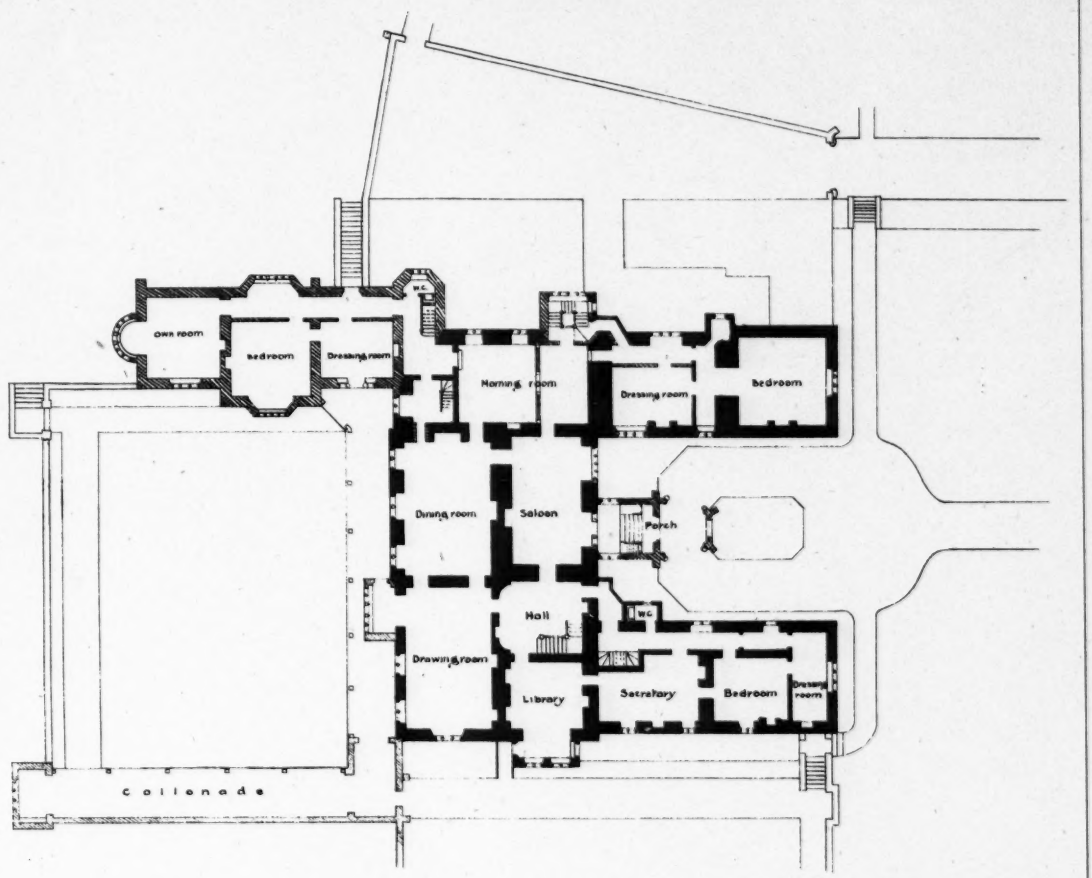

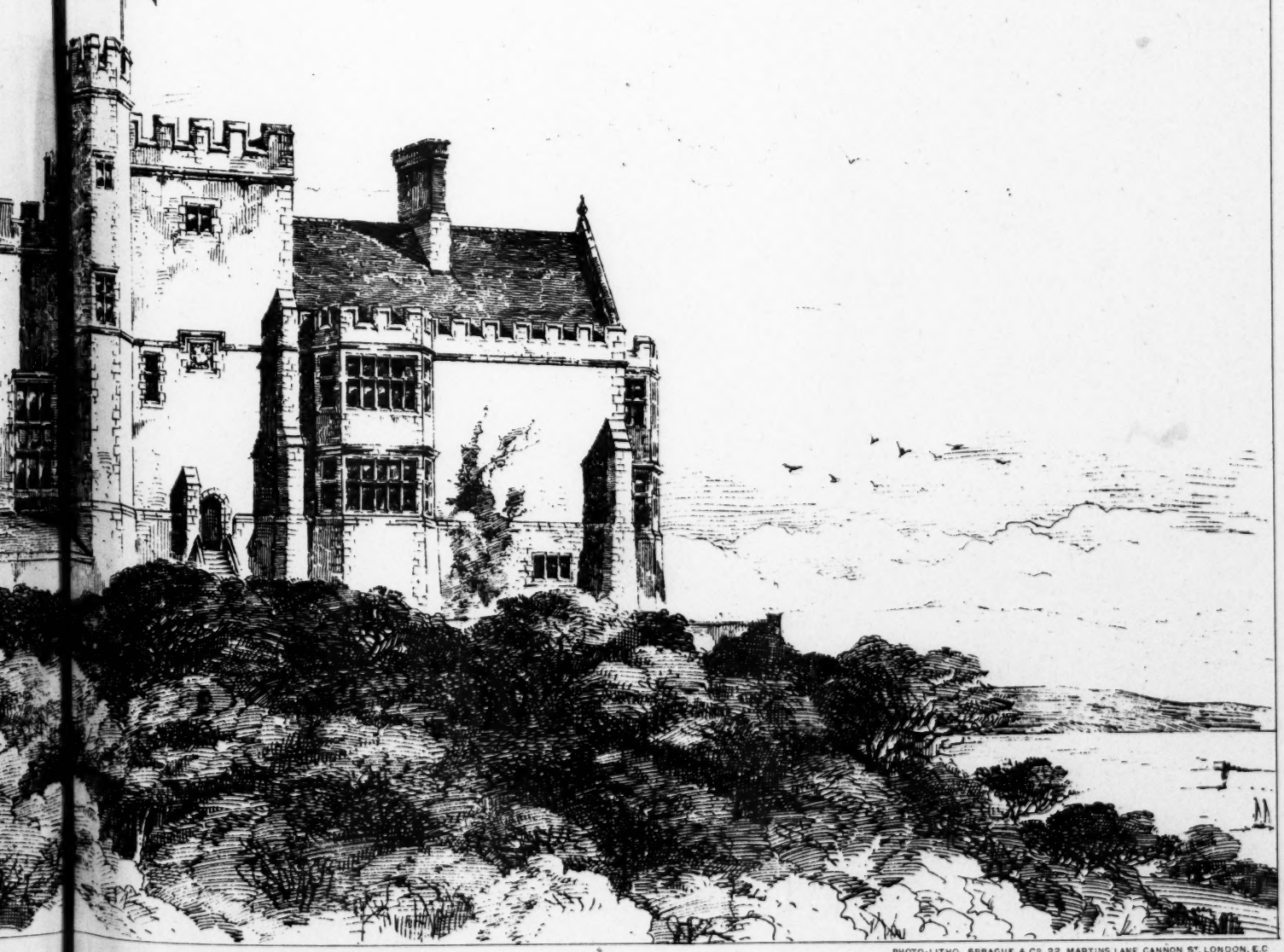

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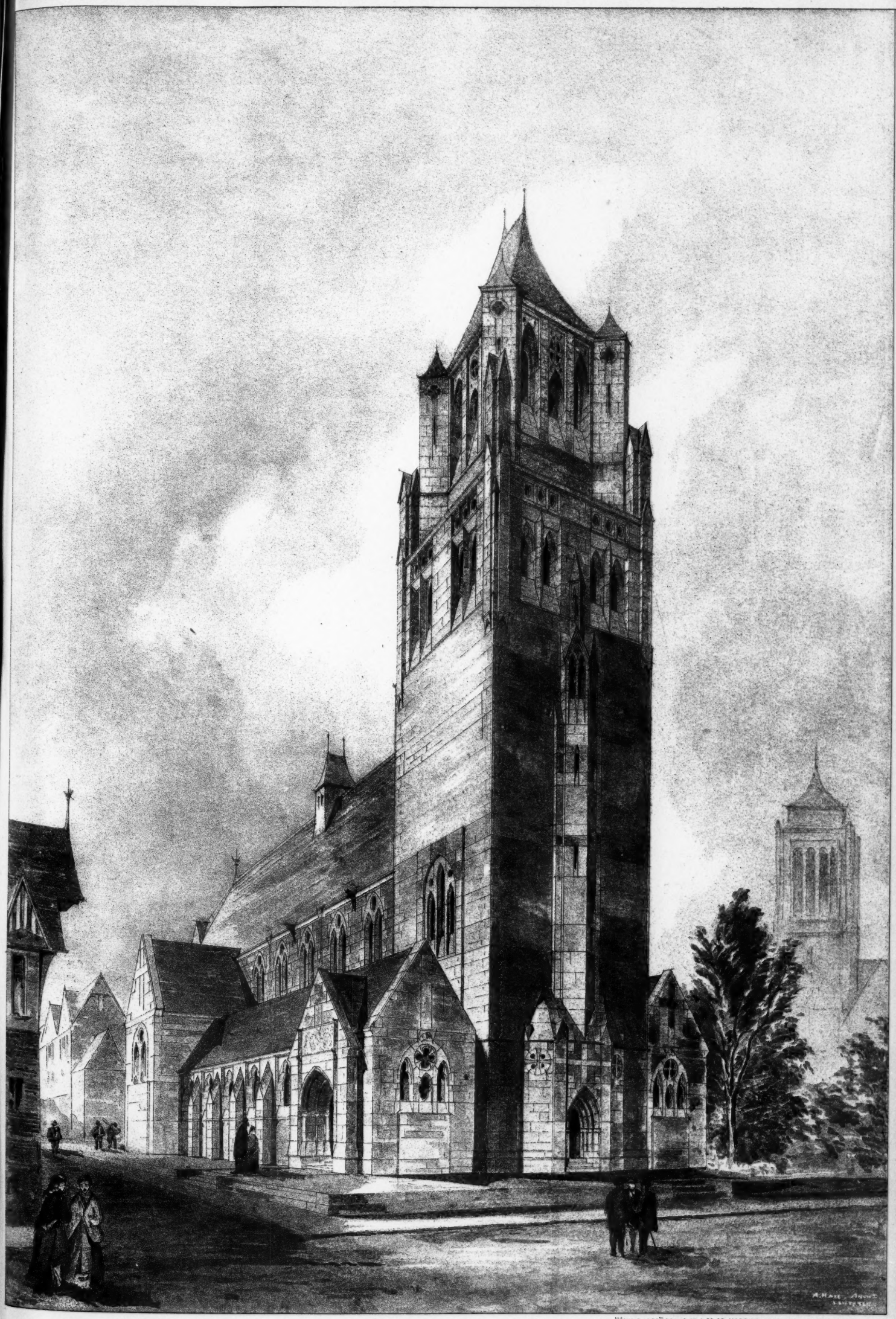
[illegible]LAMORG[illegible]SHIRE.—Messrs. Williams, West and Slade, Architects.



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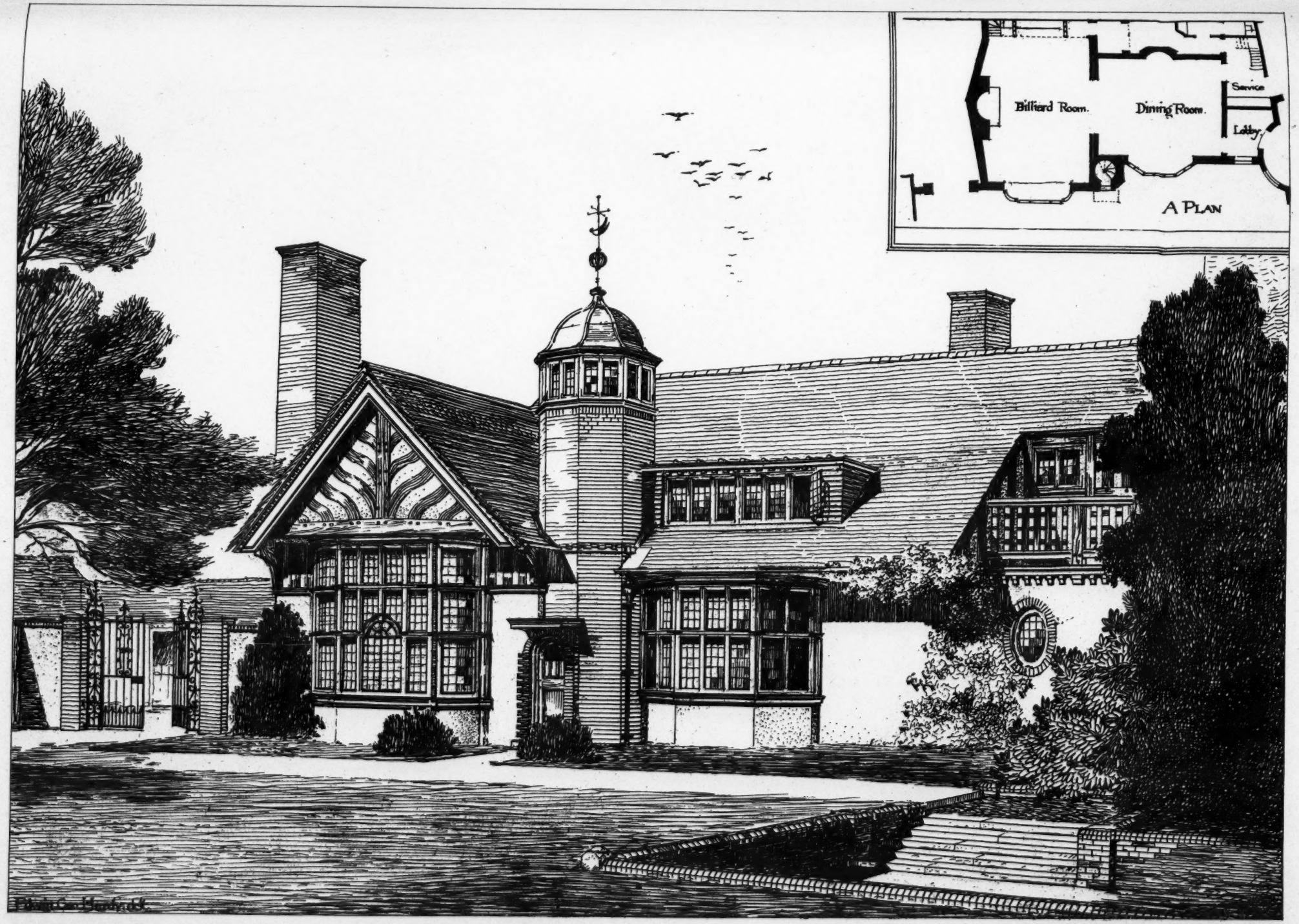
A DESIGN FOR A TOWN CHURCH.—By Mr. Amos Hall, Architect.



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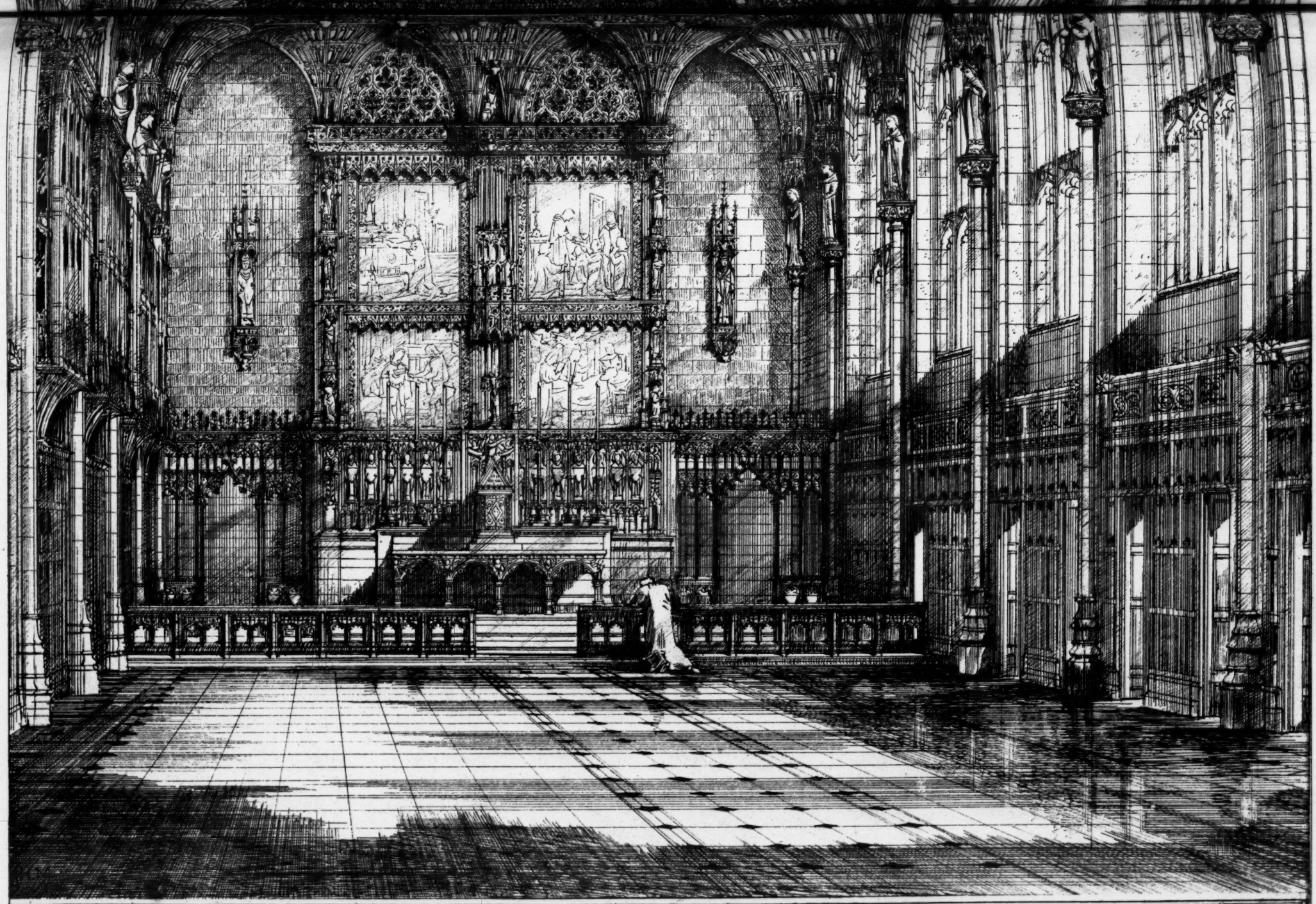
ADDITIONS TO "LITTLE MENLO."—Mr. Ernest Newton, Architect.



.DRAWN. BY. H.MONTGOMERY.

.The Chapel. Stonyhurst.

.DUNN HANSOM & DUNN.
.ARCHITECTS. 1888.

"INK-PHOTO" SPRAGUE & Co, 22, MARTINS LANE, CANNON ST, LONDON, E.C.

and it was merely an example of the influence exerted by the Spanish rule in the Netherlands.

Mr. Fletcher remarked that the "English bond" appeared to be used all over Belgium.

Mr. W. E. Pinkerton added that he had never seen an example of "Flemish bond" in Belgium or Holland. The so-called "English bond" was almost invariably used, and what went by the name of "Flemish" was only to be found in England (laughter). A good deal had been said about the excellence of the ancient work in Belgium, but some of the modern edifices, such as those in the Digue at Ostend and the boulevards of Brussels, deserved great commendation.

Mr. Percy Smith thought that a student should not, as had been suggested, look out for bad work merely for the benefit of other students, but should rather be expected to exercise his judgment in sketching the good examples.

A member asked for some information as to the cost of Mr. Hart's tour?

The Chairman said he had no doubt that Mr. Stokes's advice would be thoroughly appreciated by Mr. Hart, for however much was done in the way of sketching it was extremely advisable to measure the details. A paper such as they had just listened to, with its accompanying sketches, showed the great value of the A. A. Studentship (applause). It mattered very little where the student went, as he would find interesting work in every country. Some people liked the florid ornamental Renaissance work of the Valley of the Loire, and the *châteaux* to be found there would well repay five or six weeks of study. In the same way, in parts of Belgium which Mr. Hart had not visited, would be found any number of buildings both ecclesiastical and secular, which would repay a careful study. Normandy was a field that had frequently been trodden, but any one who went there could still bring back sketches and details which had not been looked at or drawn by those who had preceded him. Then there were also Germany and Italy, and he would not for a moment ignore the buildings to be found in our own country (applause). The mere discussion of the scheme Mr. Appleton had some time ago sketched out of consuls and lists of English buildings worth visiting,* showed what an enormous work there was still to do in sketching and drawing the details of important and interesting buildings. So that nobody need be at a loss to know where to go, and any member of the Committee would be ready with advice on the subject. Belgium was full of interesting buildings. He remembered that in the interior of the town-hall of Ypres there was some most extraordinary wood-carving. Mr. Leverton had said that a good many old buildings were merely interesting because of their age, and that if such buildings were erected now there would be little to admire in them. That, however, was only partially true. There was good old work, and good new work, and a great deal of the work done now was quite as interesting as the old. What Mr. Leverton, no doubt, meant to convey was that the picturesqueness of the aspect of a building was very dependent upon its age. A good paper might be written on material and its effect upon colour. The shades of differently-coloured stones gave an extremely good effect to a building, so that one sometimes wondered how the charming effect was obtained, and it was only by close examination one could see that it depended on the materials themselves and their colours. He quite agreed with what had been said about the excellence of much of the modern work in Belgium,—such as the Palais de Justice, at Brussels.

The vote of thanks was then put, and carried.

Mr. Hart, in replying, said he agreed with Mr. Stokes as to the desirability of making notes on the spot. Mr. Appleton had asked him if he had taken any notes in regard to the brickwork of Belgium. One of his measured drawings showed work of "English bond," the bricks being 7 in. long and 2 in. in height. He was hardly able to give the exact cost of his tour, but he believed that the 20*l.* would nearly cover it.

The result of the voting for the officers for Session 1888–89 was then announced, as follows:—

* *See* "The Architectural Association's Sketching Club scheme," *Builder*, November 26th, 1887, pp. 738, 752.

President.—Mr. H. D. Appleton, F.R.I.B.A.

Vice-Presidents.—Messrs. H. Lovegrove and L. A. S. Stokes.

Ordinary Members of Committee. — Messrs. F. T. Baggallay, W. H. A. Berry, R. L. Cox, H. O. Cresswell, G. R. Julian, P. J. Marvin, E. J. May, A. B. Mitchell, G. J. Oakeshott, and J. Slater, B.A.

Hon. Treasurer.—Mr. J. Douglass Mathews.

Hon. Assistant Treasurer.—Mr. H. W. Pratt.

Hon. Librarian.—Mr. E. W. Mountford.

Hon. Secs.—Messrs. T. E. Pryce and F. R. Farrow.

Illustrations.

THE CHAPEL, STONYHURST.

THIS chapel, which is rapidly approaching completion, from the designs of Messrs. Dunn, Hansom, & Dunn, of Newcastle-on-Tyne, is for the use of the boys, and is a prominent feature in the scheme of new college buildings which has been carried out during the past ten years, at a cost exceeding 100,000*l.*

The dimensions of the chapel are 90 ft. by 35 ft., and 45 ft. high to ridge inside. The interior wall surfaces are executed in Bath stone, and the floor, fittings, roof, &c., in oak.

The lower parts of the walls are lined with an oak dado up to the string-course under the windows, which fill one side of the chapel. On the other side are a series of tribunes, of delicate oak screenwork, corbelled out above the dado. These are for the use of the professors, and are approached directly from the "wing" containing their private rooms. The sacristy is also entered from this wing, which runs at right angles to the chapel, at the back of the altar.

The altar and lower part of the reredos is of Caen stone, and the upper part of oak, ending in fan-groins corresponding with those of the roof.

The entrance is at the opposite end, through a large double door, under an arch, with traceried tympanum and crocketed hood-mould flanked by buttresses and pinnacles. On the pier between the doors is a niche containing a marble statue of St. Aloysius, in whose honour the chapel is dedicated. The doors open upon the spacious landing of the "Grand Staircase," as also does that of the refectory, and the "Study Hall" is close by adjoining,—an important point arranged in planning the new college, and effecting a great saving of time in the daily routine of work.

Mr. Thomas Craven, of Blackburn, is the contractor who has carried out the whole of the new buildings.

DUNRAVEN CASTLE, GLAMORGANSHIRE.

THE existing castle was built in the latter part of the sixteenth century, but it appears to have undergone considerable alterations during the last century, and very little of the original internal work remains.

The illustrations show the additions being made by Messrs. Williams, West, & Slade, architects. Messrs. Shepton & Son, of Cardiff, are the contractors.

BANK PREMISES, ROSARIO, ARGENTINE REPUBLIC.

THIS is a branch of the London and River Plate Bank, and is now in course of erection, from the designs of Mr. Wm. Kidner. The principal entrance, in the centre, is that to the banking-room proper, and the side entrances are to private apartments in the rear.

The building is Renaissance in character, freely treated, and with modifications made to suit the requirements of the climate.

The original drawing is now on exhibition at the Royal Academy.

DESIGN FOR A TOWN CHURCH.

THE drawing of which we give a reproduction is hung in the Royal Academy Exhibition. The author is Mr. A. Hall, architect, of Leicester. We have already made some comments on the design in the course of our remarks on architecture at the Royal Academy.

HOUSE AT WEYBRIDGE.

THIS house has been built at Weybridge from the designs of Mr. Ernest Newton.

The principal materials used are Red Rootham bricks, English oak for the half-timber work, hanging tiles from Sevenoaks, and Red Broseley tiles for the roofs. Messrs. Maides and Harper were the contractors.

ADDITIONS TO "LITTLE MENLO," BEULAH HILL.

THIS is a small addition to a house on Beulah Hill. The owner has provided his own materials and labour. The inside of the rooms is finished with oak half-timber work, and partly red brick, and partly plaster. The walls are rough-cast, and the roof is covered with small green slates.

Mr. Ernest Newton is the architect.

THE SURVEYORS' INSTITUTION.

PROFESSIONAL EXAMINATIONS, 1888.

THE following Student Candidates have passed the Examination for the Professional Associateship:—

Ball, J. B., Torquay.
Belcher, E. J., Leinster-sq.
Bower, A. W. C., Downton.
Brady, R. H., Stockport.
Chalcraft, H. T., Dowgate Hill.
Child, E. H., Halifax.
Crouch, J. L., Enfield.
Davey, H. T., Hastings.
†Dixon, F. E., Preston.
Eagland, W. F., Didcot.
Eves, W. L., Uxbridge.
Foster, F., Gower-st.
Grimes, R. F., Downton.
Homan, H. F., Rochester.
Jones, F. H., Ealing.
Lumley, J. A., St. James's-street.
Mann, R. B., Hayes.
*Martin, H. G., Littleport.
Nicholson, E., Queen-st., E.C.
Nockolds, M. C. H., Saffron Walden.
Preston, S. D., Woburn.
Punchard, F. B., Kirkby Londsdale.
Sequeira, E. R., South Hackney.
Tilly, H. D., Maidenhead.
Watson, R., Totnes.
Webb, F. N., Linton, Cam.
Wordley, A. G., Kentish Town.

* Institution Prizeman, 1888.—Passed at the head of the list.

† Special Prize, 1888.

The following Non-Student Candidates have also passed the Examination for the Professional Associateship:—

Brevetor, T., jun., Stoke Newington.
Bulbeck, G., Pimlico.
Cheney, E. J., Cirencester.
Collyer, D. W., Weston-super-Mare.
Ellis, H. M., Wandsworth.
Gunter, J., Glasbury.
Haskins, W. A., Balham Park-rd.
Henderson, H. G., Cheltenham.
Hodge, L. P., Norbiton.
Lambert, G. C., Croydon.
Leverton, F. J. W., Upper Tooting.
Martin, T., Hastings.
Morgan, A. W., Pontypool.
Norton, G. P., Croydon.
Palamountain, J. W., Beauchief Abbey.
Roper, J. S., Kirkby Lonsdale.
‡Smith, F. W., Queen Victoria-street.
Stucké, W. H., Berwick-st.

‡ Driver Prize, 1888. Passed at the head of the list.

The following Professional Associates have passed the examination for the Fellowship:—

Benson, R. A., Buckingham Gate.
Drew, H. A., Exeter.
Furber, P. N., Upper Hamilton-terrace.
Hansell, R. G., Chancery-lane.
King, A., Spring Gardens.
Massie, F., Sheffield.
Millward, I., Athlone.

ARCHITECTURAL SOCIETIES.

Sheffield Society of Architects and Surveyors.—At a well-attended special meeting of this society, held in the School of Art on the 15th inst., it was unanimously agreed, on the invitation of the Council of the Royal Institute of British Architects, to make application for the alliance of the Sheffield Society with the Institute.

Edinburgh Architectural Association.—At a meeting of this Association, on the 17th inst., Mr. J. C. Watt, F.S.A., delivered the first of three lectures on the "Æsthetics of City-Building." The subject embraced two main divisions,—first, the abstract, embracing the natural and external æsthetics; and, second, the concrete or artificial, including site, structure, and the entire range of ornamentation. Of these two branches, attention was confined to the philosophical, and the views of various authorities on beauty, taste, and form, from Pheidias to Hogarth and Hamilton, were, according to the report in the *Scotsman*, canvassed. Their disquisitions had been engrossed by comparisons of straight lines with curves, to the exclusion of emotion or the play of mind; but their deficiency in this respect had been supplied by Herbert Spencer, who estimated æsthetic pleasure according to the number of powers called into play. The æsthetic sentiments proper were composed of the varied emotions excited in the mind by association. Here nothing but mental activity was involved, and this the lecturer regarded as insufficient to indicate the scope of the subject. He preferred to regard æstheticism as a mixture of beauty and emotion, and the emotion excited by association must be pleasant, both as regarded the present and historical affinities.

The principles thus evolved were then applied to city-building, and the important part which nature and history had played in the composition of a town exhaustively treated, especially with regard to the origination of styles, the castellated and Scottish baronial in particular. With reference to the artificial division, letters were read from Professor Blackie and Sir James Gowans. The Dean of Guild said, as regarded Edinburgh, "The only plan (for controlling the architectural appearance of buildings) I can think of is, that the Dean of Guild Court should have control over the exterior of buildings, or anything that affected the amenity of the city; and, to give confidence to the citizens that this power would not be abused or dealt with by men whose taste might not be of a high order, that there should be added to the Court the President of the R.S.A., the President of the Architectural Association, and a citizen whose taste on such matters was recognised. Such an arrangement would help, no doubt, to prevent unsightly erections as well as other incongruities which tend to destroy the beauty of our ancient stone-built city." Consideration of the second branch of the subject has been postponed to October. Mr. Watt received the cordial thanks of the Association. Mr. Hippolyte J. Blanc, the President, was in the chair.

Glasgow Architectural Association.—The first of the sessional monthly meetings was held on the 15th inst. There was a good attendance,—the President in the chair. Mr. John Dall read a paper on "A Sketching Tour in Fifeshire," giving a running commentary on the more important examples in what is perhaps the richest county, architecturally, in Scotland. A large collection of drawings of these were hung on the walls, the result of the essayist's extensive measuring and sketching in the kingdom. Mr. J. B. Nisbet opened the discussion which followed, and at its close a hearty vote of thanks was passed to Mr. Dall.

THE ASSOCIATION OF MUNICIPAL AND SANITARY ENGINEERS AND SURVEYORS.

DURING the twelve months ending with the 30th of April last, the following gentlemen have joined this Association:—

Borough Surveyors:—Messrs. J. W. Walshaw (Peterborough), J. D. Watson (Arbroath), E. J. Silcock (King's Lynn), W. H. Brockbank (Bolton), G. D. Bellamy (Plymouth), W. H. R. Crabtree (Doncaster), J. Collie (Dunoon), W. De Normanville (Leamington), W. J. Newton (Accrington), and H. C. Crummack (Hartlepool).

City Engineers.—Messrs. Spencer Harty (Dublin), and P. P. Marshall (Norwich).

County Surveyors.—Messrs. R. H. Dorman (Armagh), and F. W. Ruck (Kent).

Surveyors to Local Boards.—Messrs. R. S. Marsh (Cockermouth), T. L. Heward (Carshalton), G. Cannon (Aylesbury), W. H. Fry Alverstoke), R. Dixon (Harborne), G. E. Eachus (Edmonton), T. Nuttall (Kearsley), T. Farrell (Sherborne), J. E. Swindlehurst (Rawtenstall), G. Land (Norden), C. N. Lailey (Acton), W. W. Cooper (Hinckley), G. Wilson (Alnwick), J. Stokoe (Altrincham), R. J. Stephens (Belgrave), A. E. Collins (Weston-super-Mare), J. Willson (Ashford), G. H. Wild (Wardle), P. Edinger (Frome), H. Richardson (Oldbury), E. R. Capon (Skegness), and J. C. Stuart (Smethwick).

Town Surveyors.—Messrs. W. Cloutman (St. George), W. F. T. Molineux (Shifnal), W. Horne (Worthing), W. Fiddian (Stourbridge), and J. M. Siddons (Oundle).

Surveyors to Rural Sanitary Authorities.—Messrs. A. C. Baugh (Wrexham), J. Parker (Basford), W. E. C. Thomas (Neath), and F. Smythe (Solihull).

Surveyors to Vestries and Metropolitan Districts.—Messrs. C. H. Lowe (Hampstead), G. Weston (Paddington), W. Weaver (Kensington), J. Barber (Streatham and Tooting), J. P. Norrington (Fulham), and M. C. Meaby (St. Luke's).

Engineer to Corporation Gas and Water Works.—Mr. W. A. McI. Valon (Ramsgate).

Graduates.—Messrs. J. S. Pickering (Westminster), F. J. Nickols (Leeds), J. Saunders (Newark), E. W. Rich (Hounslow), G. Ball (Scarborough), M. W. Jameson (Hackney), W. Parker (Hereford), R. W. Smith-Saville (Accrington), F. D. Ward (Manchester), and T. E. W. Mellor (Tunbridge Wells).

The Association now numbers about 350 members of all ranks.

"THE VENTILATION OF SEWERS."

SIR,—Evidently Mr. Santo Crimp did not investigate the causes of the downward and counter air-currents in his sewers at Wimbledon. Because his anemometers showed the air-currents to be downward he concludes that "the way the wind blows" and "the sewage itself,"—he means the *flowing* sewage,—are the causes which produce air-currents in sewers. I am surprised that he should advance this theory. That heat induces air-motion, and, consequently, ventilation, he entirely ignores. He does not seem to know that air, gas, or vapour, when heated, is expanded and rarefied, and thereby ascends and produces ventilation. It is heat which causes the wind to blow, and the air, gas, and vapour in sewers, and the air and smoke in chimneys to expand, rarefy, and flow upwards. He will find that as the breath exhales from his mouth it ascends. Why? From the cause I have stated. According to his theory,—that the air-flow in sewers is caused by "the way the wind blows" and "the flowing sewage,"—heat has nothing to do with the ventilation of sewers. By his theory he also ignores the fact that the gases and vapour which emanate from the warm sewage, and which are considerably lighter than common air, rise upwards to the highest points in the sewers, and also in the gully and house-drains connected therewith. From the latter the gases and vapour escape into the streets and houses if there be no water-traps there, and even through these if the pressure of the gases and vapour exceed that of the atmosphere and the small resistance offered by the water in the traps. He also forgets, or seems not to know, that *direct air-communication* between the sewers themselves, and between the sewers and the houses and streets by untrapped drains, and sometimes when these are trapped, cause downward and counter air-currents in the sewers. He also seems not to be acquainted with the fact that very often heated houses, aided by the kitchen and other fires burning therein, act as powerful suckers of air from the untrapped, and sometimes even from the trapped, drains connected with the sewers, just the same as tall cylinder glasses round gas-flames suck air into them from the rooms, and so intensify the draught and the light from the burners. That Mr. Santo Crimp did not investigate these and other causes to account for the downward and counter air-currents in his Wimbledon sewers before he jumped to the conclusion that the ventilation is caused by the "blowing of the wind" and the "flowing of the sewage" is not only surprising, but he proves himself thereby to be lamentably ignorant of the subject of which he poses himself to be a guide and professor. By trusting to his anemometers, and neglecting to stop off all possible air-connexion between the sewers themselves, and between the sewers and the houses and streets by the house and gully drains, his experiments, and his deductions therefrom, will be worthless and lost labour.

Mr. J. W. Brown says that I am wrong when I assert "that the advocates of the street-level gratings hold that by the admission of fresh air through these gratings into the sewer the air becomes comparatively pure." Does he not know what the leader whom he and others follow says at p. 15 of his "Suggestions"? He says that, "with the abundant means for ventilation suggested,"—viz., by the street-level gratings,—"the air within the sewers (by dilution) will be *comparatively pure*." Thus it is not I, but the compiler of the "Suggestions," who has perpetrated this assertion. He goes on to say that, as "the air in the street" will be "changed and renewed many times during the day . . . . the air in the sewers will be several millions of times less in comparative volume than the air in the street. The dilution of any sewer-gas will, therefore, be in some such proportion." In my article, at p. 296, *ante*, I said that this statement was a "lame argument," which it certainly is, and not only that, but mischievous and inexcusable. There is no doubt that this statement has prevented, and still prevents, the application of proper improvements for ventilating the sewers in towns. By always discharging sewer-air into the streets, the atmosphere there is always more or less poisoned. It is nonsense, therefore, to say that the atmosphere thus polluted, and breathed by the people, is not injurious to health. It is as dangerous to health as it would be to constantly pour poisonous drugs into water which the people drink and use for culinary purposes. To be always breathing air polluted with sewage gases, or drinking water containing a deleterious drug, is, in either case, slow poisoning, which produces disease, shortens life, and raises the death-rate.

The baneful system of constantly discharging noxious sewer-air into the streets is contrary to reason and common sense, and to sanitary science. Yet this is the pet system which Mr. Brown and engineers of his school apparently advocate from the want of a knowledge of the correct principles upon which sewers should be ventilated. At this time of day this system is disgraceful, and should not be tolerated. It came into use first in the City of London, and then throughout the metropolis, during the second quarter of the present century, when overflow-drains from cesspools behind and under houses were being largely laid into the natural watercourses, ditches, and street-sewers, and has been in vogue, without any improvement, ever since. I have done my best, from my long experience, to show how this evil system of ventilation may be easily and effectually remedied. The letters of Mr. Santo Crimp and Mr. Brown are specimens of how any one who is not of their school, and who presumes to improve unsanitary sewer ventilation and sanitary science, is met. Mr. Brown writes glibly about designing and constructing self-cleansing sewers. Does he know how to produce self-cleansing sewers? I feel sure he does not. If he follows the practice of some engineers of his school, who arrange the gradients of sewers from a given velocity of 150 ft. per minute when the sewers are assumed to be running half full, then most of his sewers, like theirs, will be sewers of deposit, as no doubt they are, if the truth were known, owing to the sewers, in dry weather, never running one quarter full, and the velocity then being much less than the required self-cleansing velocity. Mr. Brown is surely not aware that (1) the egg-shape sewer, (2) the trapped catch-pit gully, (3) the 150 ft. rate of velocity per minute at which sewage must flow to prevent the sedimentary matters from depositing, and (4) the separate system, *i.e.*, that rain or surface water should be kept as much as possible out of the sewage carriers,—all which are now used or adopted all the world over,—were first introduced or enunciated by myself, for benefiting sanitary science, between thirty-nine and forty-four years ago.

JOHN PHILLIPS.

Putney, May 21, 1888.

P.S.—Mr. Brown asks me to "give one single case where death has been caused by the inhalation of disease-germs when passing over these terrible street-gratings." I do not now remember any actual case, but it is well known that deaths have resulted from this cause. The following letter, which Mr. Charles Slagg has kindly sent me, confirms my statement; and many such cases could be adduced if I had time to make researches:—

"27, Hereford-road, Leominster,
21st May, 1888.

Dear Sir,—In the *Builder* of the 19th inst. a correspondent asks you whether you can give 'one single case,' &c. No doubt you could give him one or more, but in case you should not remember one, of actual death resulting from foul sewer air, let me remind you of the death of a physician,—I think Astley Cooper Key, nephew of Sir Astley Cooper, who met a friend in Regent-street, and stopped to speak to him over an untrapped gully, and it was not until he felt ill that he looked down, and became aware of where he was standing. He went straight home, and soon after died, and he told the people round him how it had happened.

I do not remember seeing the case mentioned anywhere since, but it was in the *Times* newspaper at the time.

I have known many cases of illness from the same thing, but could not, perhaps, state by name any other actual death.—Yours truly,

John Phillips, esq., C.E." CHARLES SLAGG.

SIR,—The discussion of this subject is both interesting and important. In it I beg to side with Mr. John Phillips, and to endorse the second paragraph in his letter on p. 343; only I would not insist on the inlet being at the lower end of the sewer. More than nine years ago I put a ventilating disconnecting-trap in the centre of a street, with a fresh-air inlet over it, and from the head of the street a 4½-in. iron blow-off pipe was carried up to above the top of the chimney cans and surmounted by one of my induced-current fixed ventilators, and I have heard no complaint since.

I think some experiments were made by passing smoke into the trap at the grating, and watching

how long it took to come out at the outlet exhaust ventilator; but I forget the time, although the impression on my mind is that the experiments were quite satisfactory.

In an unsatisfactory case some time ago, the blow-off pipe was only carried up the wall to about three-fourths of its height, and no exhaust ventilator used, and the effect was unsatisfactory. But in this latter case the work was not done properly.

In this connexion I would ask both Mr. Phillips and Mr. Santo Crimp to look at fig. 10, sheet 2, of the specification of my patent, No. 1,502, of March 22nd, 1883, and say if anything more is needed than what is shown in the said sketch. In this case the air and the water are both supposed to flow in the same direction, the foul air being discharged overhead, above the houses. I have called this the high-level system of sewer ventilation, which removes the objections made by Mr. Crimp on p. 324.

As to using disinfectants and machinery for ventilating or deodorising the sewers or the gases in them, I think such, generally speaking, is unnecessary. We want the sewers well built, and with smooth bottoms, and all house-drains locked off them, and the said sewers so ventilated that no offensive gases or air from them will be blown off under the noses or mouths of the passers by.

W. P. BUCHAN.

Glasgow, May 12.

LONDON THEATRES IN 1596.

SIR,—The points connected with the early history of the stage in England are so obscure, and so much fresh light is required, that it is somewhat disappointing to find the *Builder* resuscitating an exploded opinion as to the foundation of the Blackfriars Theatre. There can be no doubt that although plays were acted in the Blackfriars before 1596, no regular theatre existed there anterior to that date. As to the Whitefriars Theatre, it is very doubtful whether any theatre was built there before the beginning of the seventeenth century, although plays may have been acted in the precinct at the end of the sixteenth century. If the writer of the article in the *Builder* has any facts relating to a Whitefriars theatre in 1596, I trust he will print them for our information. The third point which I wish to criticise is the remark that there are many followers of Collier who believe in his early dates for the Globe and other London theatres. I know there are a large number who hold to the late Mr. Collier's dates, but I submit that this is from pure ignorance. I do not for one moment suppose that any one who knows the facts as set forth by Mr. Halliwell Phillipps can doubt the correctness of his facts.

HENRY B. WHEATLEY.

HANOVER-SQUARE BATHS COMPETITION.

SIR,—The Commissioners of the Vestry of St. George, Hanover-square, invited nine architects to send in competitive designs for new baths and wash-houses.

The designs were submitted, and Mr. Cubitt Nichols was appointed assessor.

The Commissioners have received Mr. Nichols's report, but decline to act upon it or to produce it; and have selected a design that "*will have to be considerably elaborated, and a few modifications introduced*" into it. They also promised "to exhibit *all* the designs submitted," but the very next morning after the Vestry meeting the selected design was removed.

Under these circumstances, I think I have a right, as a competitor, to ask that Mr. Nichols's report be published.

ONE OF THE COMPETITORS.

HOLIDAY HOMES.

SIR,—As in its work the Ragged School Union counts among its four thousand voluntary helpers not a few architects and builders, I trust you will allow me a brief space to appeal to your readers on behalf of our holiday homes. Their object is to afford to the poorer children of the London Ragged Schools a fortnight's holiday in the country. Some of our friends have purchased or built cottages, specially set apart for the children; others receive the children into their own homes, or board and lodge them with respectable families; friends in town help with money, gifts of new and cast-off garments and boots for the children; and as the result of a weekly collection in a large London warehouse, not less than twenty children are maintained during the summer. The number sent last year was over 1,600,—a number that would be largely exceeded this year if your readers could be brought face to face with the thousands of little people to whom necessity compels us to deny the holiday so greatly needed.

JOHN KIRK, Secretary.

Ragged School Union, 13, *Exeter Hall, W.C.*

Appointment.—We hear that Mr. James Brooks has been appointed honorary architect to the Canterbury Diocesan Education Society, a position recently held by the late Mr. J. Clarke.

The Student's Column.

IRON.

XXI.—SOLID BEAMS AND BEAMS WITH THICK WEBS.

IN beams whose sections are unsymmetrical, the centre of gravity may be determined by the method of taking moments; that is, the section is divided up into layers, whose areas, multiplied by the perpendicular distances of their centres from a plane in any assumed position, and divided by the total area, will give the distance of a line parallel to that plane, which line contains the centre of gravity of the whole section. Thus, by assuming two planes at right angles to one another, the position of two lines at right angles to one another, one parallel to each plane, can be found, and the centre of gravity is at the intersection of these lines. The moment of inertia may then be calculated by multiplying the area of each layer by the square of its distance from the centre of gravity, as explained in the previous article. In addition to the above method, there are other means of finding the moment of inertia, such as Heppel's formula,* and a graphic method which is very fully explained in "Beams, Columns, and Arches," by B. Baker. Both these methods will apply to any section, whether symmetrical or otherwise, but are not so useful for ordinary beams, such as rectangular, circular, or triangular sections, as the formulæ, which have been framed in algebraical language for each special section.†

We have already shown how to find the bending moments in beams under different conditions, varying according to the position of loads, and the method adopted for support, and the bending moments in solid beams being the same as in flanged girders, no further explanation upon this point is necessary. We have now learnt all that is required to ascertain the strength of solid beams, or beams with thick webs, and it simply remains to illustrate the theory by a practical example.

Suppose we have to deal with a beam of wrought iron, 36 in. long by 2 in. square, what will be the safe load in the centre of the beam, if the strength of wrought iron be taken as 20 tons per square in., and a factor of safety of 4 is allowed.

The simplest formula for the moment of inertia of a rectangular beam is

$$I = \frac{B D^3}{12}$$

$$\therefore I = \frac{2 \times 2^3}{12} = \frac{16}{12} = 1{\cdot}33$$

$$\text{Moment of resistance } M = \frac{F\,I}{\frac{1}{2}D} = \frac{20 \times 1{\cdot}33}{1} = 26{\cdot}6$$

$$\text{Working moment of resistance} = \frac{26{\cdot}6}{4} = 6{\cdot}65 \text{ inch tons,}$$

which should be equal to the bending moment on the beam.

Now the bending moment for a load applied in the centre of a beam supported at both ends $= \frac{W\,L}{4}$, where W = load and L = span.

$$\therefore \frac{W\,L}{4} = 6{\cdot}65 \text{ or, transposing } W = \frac{6{\cdot}65 \times 4}{L} = \frac{26{\cdot}6}{L}$$

$$\therefore W = \frac{26{\cdot}6}{36} = {\cdot}74 \text{ tons, or } 14{\cdot}8 \text{ cwt.}$$

Another means of obtaining the transverse strength of a beam is to find experimentally the breaking weight of a beam of known dimensions and of a similar section to that of which we require to ascertain the strength. By so doing we can obtain constants, which are generally known as the moduli of rupture. It is to be noted that the strength of beams and girders calculated by the second method seldom agrees with the results obtained by the first method. The first method gives more labour in calculation, and is less reliable. On the other hand, the modulus of rupture has only been determined for a few sections, which renders this method unavailable in many cases, whereas the first method can be applied to any section or any material.

Glasgow Exhibition Buildings.—We are asked to mention that "Ben Turner's patent double-action door springs" are used entirely throughout these buildings.

* See Molesworth's Pocket-book of Engineering Formulæ.
† Ibid.

Books.

Japanese Homes and their Surroundings. By EDWARD S. MORSE, Director of the Peabody Academy of Science, &c. With Illustrations by the Author. London: Sampson Low, Marston, Searle, & Rivington (Limited). 1888.

A THOUSAND years ago, so say the ancient "Rituals," translated by M. Satow, the palace of the Japanese sovereign was a wooden hut, consisting of posts, beams, rafters, &c., tied together with the fibrous stems of climbing plants; the floor was of mud; the roof of thatch, gabled at each end, through holes in which the smoke of the wood fire escaped. It is possible that in those days many other sovereigns were so housed. But their huts have given place to permanent structures of more or less architectural magnificence, whereas, the Japanese home of to-day is but little more than the hut of long ago. It consists of many apartments, but it is still a mere framework, showing little or no science in the disposition of its parts, and only claiming notice as a work of art on account of the embellishment of its primitive elements. It is startling to think that so ingenious a race could have gone on building wooden houses for a thousand years without having hit upon the principle of the truss, for we must assume that, as no instance of its use occurs, it has remained undiscovered. The frequent recurrence of earthquakes, and the great liability of the Japanese house to destruction by fire, have reconciled the Japanese to frail structures, which may be demolished to prevent the spread of a fire or burned up without very material loss to the owners. Attached to, or close by, each dwelling is a Kura, or fire-proof building, into which, in case of fire, the few movables are stowed, and whence they are removed when the new hut shall have been duly erected on the site of the old.

The Japanese house has no roots in the ground. The posts supporting the older huts decayed, and so in the course of a few centuries the builders adopted the plan of fitting the bottoms of the posts upon large flat stones laid on the ground. The floor is raised a foot or 18 in.; and always two, and sometimes three, sides of the house are unenclosed, except in the presence of storms or at night, when the *amado* or shutters are taken out of their wooden cupboards and run in their grooves to enclose the verandahs, much as in the case of our old-fashioned shop-windows, the last one being bolted and securing the whole series. In this enclosure a low trap-door is left, whence the Japanese gentleman (lifting a floor board and taking from under it his shoes and umbrella) emerges, if the tremors of an earthquake or the proximity of a fire alarm him. Everything about a Japanese house is of the nature of a fitting, nothing is a fixture but the framework. Furniture there is none, except a flower vase, a shelf or two, perhaps a low writing stool, and a few portable fire-pans, one of which is allotted to each occupant when the weather requires it. The pictures—of which we have lately seen so many—are hung up, one at a time, and in some houses changed every day. The screens dividing the rooms from each other and those enclosing the house, are movable and moved; they are covered with paper, and in them the brushwork of the artist finds a field, an artistic guest being expected to leave a drawing thereon; much as a visitor was expected years ago in England to contribute to the "album" of the young lady of the house.

A perplexing peculiarity of the Japanese house is that it has no front door, nor indeed any door, except the one which gives access from the street to the garden in which the house stands. This feature appears to exercise the ingenuity of the Japanese in a marked degree. They are called beautiful by Mr. Morse, but we should rather say grotesque. They are framed of heavy timber, and have little pent-house roofs. The doors are studded with sham bolts, and covered with sham straps, presenting a massive *appearance*, and that is all. Once inside this doorway and the whole house is at your service, for you can enter any room you please. This makes a Japanese plan difficult to read. As the houses are seldom of more than a single story, there are no staircases to give a clue to the arrangements, and where the house is of more than one story the access to the upper rooms is by a step ladder, which is, of course, movable.

A curious point in Japanese construction, showing the conservative nature of the methods they employ, is seen in the fact that their roof tiles or shingles are nailed or pegged at their lower or exposed edges. One would have thought that some genius would have arisen to suggest that the peg should be covered by the lap, especially as the heavy rains must damage a roof shingled in the native manner. If we have much to learn from the Japanese in the decorative arts,—which is beyond question,—they have at least something to learn from Europeans in constructive science.

The thoroughgoing apologist for Japan and its ways, such as Mr. Morse, finds "good in everything," but to us it appears that there is room for discrimination. An example is given in his book of a stone bridge arranged of two slabs, each a little longer than half the width of the stream to be crossed, and their ends overlapping and laid side by side. He says it is an "ingenious device," as it no doubt is for precipitating the unwary into the water under pretence of carrying him safely over! Of the curious gardens of the Japanese, their dwarfed trees, wells, miniature mountains, artificial lakes, and ever-present bridges, and infinite delusions and surprises, we have all heard, and many of their methods of making the most of a limited plot of garden ground are admirably artistic. But from their architecture no hints are to be gathered for European use, except, perhaps, their manner of turning the space under the stairs to account. Their stairway, in its most permanent development, is simply an arrangement of boxes which can be piled up and removed at will, but under them an assemblage of cupboards with sliding doors, tall cupboards, drawers, &c., are contrived, and contain almost all the movable effects of the owner,—bedding, candlesticks, lamps, stoves, &c., &c.; the dark and dirty hole under our ordinary staircase might be improved in this direction,—and this is almost the only useful practical hint we can obtain from Mr. Morse's interesting book. He acknowledges that the delicate bamboo framing and perforated panel-work, which are everywhere within reach, could only exist undestroyed in Japan, and that an English or American "rough" would, in a few hours, reduce a Japanese house to "kindlings." One might go further, and say that an English school-boy, home for the holidays, would, if in average health and spirits, convert it as quickly into a ruin. But these delicate buildings, frail as they are, are stable enough for the gentle Japanese. As Englishmen cannot inhabit them without unwittingly destroying them, the Japanese have wisely erected houses for the "barbarians" in their own barbaric manner; and this is as it should be. The cage of the singing-bird would be a poor home for the lion, a fact which the Japanese have discovered and acted upon.

In taking leave of Mr. Morse's most interesting book, we can only say that we think his criticisms of English and American homes are a little out of date, and that the flowery carpets and sticky furniture which Mr. C. L. Eastlake attacked with so much vigour are not now found in the better class of English homes.

A Parochial History of St. Mary Bourne; with an Account of the Manor of Hurstbourne Priors, Hants. By JOSEPH STEVENS, Member of the Royal College of Physicians, London, &c. London: Whiting & Co. 1888.

THAT this is the history of a lonely parish may be inferred from the fact that, within living memory, the school children were given a half-holiday if it got wind that a post-chaise was likely to pass through St. Mary Bourne! Cobbett relates, in one of his "Rural Rides," that it was here that he failed to learn the way to a neighbouring village four miles off, the residents never having wandered so far from their birthplace.

However, many things have happened in the last 50 years, and St. Mary Bourne has now fallen into the march of progress, having a Board school and several new villa residences to boast of. What the old residences of the parishioners were, and what their history and ways, Mr. Stevens tells at considerable length with patient care. He offers something to every taste,—the zoologist, ethnologist, palæontologist, archæologist, "the architect, artist, and man." He has carefully examined all the records bearing on his subject; gives in detail the genealogies of the old families of the manor, and the doings of notable residents therein, and enlivens his pages with the usual mysterious and quaint extracts from old parish registers, court rolls, &c. He has a pleasant remembrance of many years happily spent in the parish, and the labour of framing this record of all that is worth recording of its history has been one of love. It could scarcely have been better done, and we can only wish that every parish and manor in England had such a "faithful chronicler" as Mr. Joseph Stevens.

The church, though of Norman foundation, does not appear to be of special interest, and comparatively little is said about it. Some drawings of flint implements, pottery, &c., by the author, and one or two drawings of the (restored) church,—apparently from photographs,—illustrate the book, which, in its general get-up, reflects much credit on the publishers.

RECENT PATENTS.

ABSTRACTS OF SPECIFICATIONS.

5,814, Drying "Slip" or "Slurry" from which Portland Cement is made. T. H. Lodge.

This invention relates to the moulding, drying, or handling or moving about of the "slip." The hot waste gases from the kiln are utilised; the wet slip or slurry being placed in iron trays, and laid in tiers within a drying-chamber mounted on wheels, so that the heat is applied to all the exterior parts of the slip within the moulds, and the water driven off. Or, a car may be suspended from a beam, and be moved to and from the kiln by a traversing carriage.

8,319, Draught and Dust Excluder for Railway Carriage or other Doors. F. Attock.

By this invention a horizontal flap of metal is so arranged that normally it assumes a position in which its surface will be a vertical plane, but when the window of the railway carriage door is raised and placed in a closed position, the lower edge of the window-frame bearing against the flap will cause it to partly rotate upon its hinges, and it will close the opening out of which the window or shutter has been raised. No springs are required, and the invention may be applied to windows and shutters of private houses, &c.

9,504, Window Fasteners and Catches. C. D. Norton.

The novelty of this invention consists in attaching the underside or catch of the ordinary window fastenings a plate of metal, which is secured loosely by a rivet on the outside bed plate. This metal plate has a heart or L-shaped slot-hole, which is worked by a pin or key projection on the underside of the shaft or crank. When the window is required to be fastened in the ordinary way, the catch or shaft is worked as usual, but at the same time the pin works in the slot-hole, and throws the plate on to the left side and over the joints of the meeting-rails of the sashes, thereby preventing the fastening from being in any way tampered with from the outside.

11,078, Securing Metal Roofing Sheets. T. R. Shelley.

This invention principally relates to zinc roofing, and dispenses with wooden rolls and all outside fastenings, leaving always full allowance for expansion and contraction of the metal. A sheet of metal is taken and laid on the structure to be covered, and through an elongated slot on one corrugation at the side of the sheet of metal is passed a screw with a large head, the screw being firmly secured into the boards or rafters forming the structure. Another sheet is placed in position, so that the corrugation on the opposite edge covers the one through which the screw has been driven. At similar distances to the screws in on the inner side of the top corrugation, short pieces of metal bent to a less radius than the outer corrugation, and punched with an elongated slot, with a widened-out piece to admit (on pressure) the head of the screw, are fixed. The sheet is then forced down the slope of the roof, and the head of the screw is gripped by the narrowed portion of the slot, fixing the whole securely.

2,799, Casement and Sash Window Fittings. J. Hird and W. A. Ford.

Casement and sash windows, doors, and such like structures are by this invention made with hinges in two parts to rise and fall vertically on their axis over each other, for swinging them out clear of their fixed frames and sills.

3,737, Door Knobs and Spindles. H. Vaughan and W. Thrubshaw.

To prevent the knobs from slipping back accidentally along the spindles, a ferrule or sleeve is, according to this invention, fixed direct upon the spindle, and the neck of the knob is fixed around the ferrule or within a socket by means of a pin passing through one side of the neck and through the slot in the spindle, which is similarly treated at both ends.

NEW APPLICATIONS FOR PATENTS.

May 11.—7,027, J. Wolloms, Window Fastenings.—7,031, G. Wright, Register Stove Grates.—7,056, M. Hollins, Tiles.

May 12.—7,069, J. Anderson, Automatic Brick Moulding and Pressing Machine.—7,082, B. Russell, Building and Glazing Glasshouses.—7,086, W. Creed, Fan Ventilator.—7,087, J. Hughes and Others, Decorative Fireproof Material.—7,096, W. Thompson, Door-Fasteners, &c.—7,098, J. Whitehouse, Stench Traps for Sewers and Drains.

May 14.—7,120, H. Summers, Fire-proof Curtain for Theatres.—7,132, G. Lock, Ventilating Drains.—7,142, C. Penhorwood, Cleaning Wall-papers.

May 15.—7,182, W. Goodchild, Bolt for Coach-house and Heavy Doors.—7,190, J. Cropper, Flushing Water-closets.—7,198, F. Osborne and E. Richardson, Glass-cutter.—7,206, C. Straub, Wall-covering Composition.—7,211, J. Hawkins, Construction of Sewers.—7,223, G. Smith, Sockets for Earthenware Pipes.—7,225, J. Hird and J. Ford, Fittings for Casement and Sash Windows, Doors, &c.

May 16.—7,251, R. Partridge, Door-Latches.—7,288, J. Phillips, Gullies and Drains.

May 17.—7,295, W. Russell, Stoves and Fireplaces.—7,305, T. and J. Fawcett, Moulding and Pressing Bricks, Tiles, &c.—7,327, H. Carew and F. Potts, Disinfecting and Sanitary Brick or Building Block.

PROVISIONAL SPECIFICATIONS ACCEPTED.

12,893, S. Harrison and J. Sheard, Testing Gas Pipes and Fittings.—1,983, H. Birkbeck, Portable Scaffolding.—3,408, E. Redwood, Tool for Finishing Woodwork.—4,518, J. Marston, Opening and Closing Fanlights, &c.—4,877, J. Prince, Dies for Bricks and Tiles.—5,220, C. Stout, Indicating the Flow of Water in Pipes.—5,247, De F. Pennefather and J. Dinsmore, Ventilating Rooms, &c.—5,356, P. Fyfe and J. Maclauchlan, Fumigating and Testing Drains, Soil Pipes, &c.—5,569, J. Innes, Apparatus for Removing Gum from Saws.—5,571, J. Innes, Setting Saws.—5,617, G. Barker, Girders, &c.—5,637, G. Nash and P. Lacassagne, Windows.—5,682, C. Jones, Window Sash Fasteners.—5,905, T. Laurie, Cellar Openings.—5,916, A. Mackmurdo, Warming Apartments.—5,929, S. Eddington and J. Stevenson, Brick-moulding Machines.—5,947, A. Drummond, Glazing Bars or Astragals, &c.—6,015, A. Fehlen, Warming Rooms.—6,039, J. Dando, Ventilators.—6,103, C. Brothers, Hit-and-Miss Ventilators.—6,139, J. Petter, Roof Plates for Stove Pipes.—6,140, J. Bannochie, Open Firegrates.—6,142, J. Hamblin, Fireplaces.—6,207, G. Arnold, Joint Connexions of Sanitary Drain Pipes, &c.—6,261, J. Sellars, Cement.—6,638, J. Smith, Bricks, Tiles, &c.—6,588, T. Bennett, Domestic Firegrates.—6,651, T. Twyford, Flushing Cisterns.—6,707, T. Craddock, Stoves or Kitcheners.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to Opposition for Two Months.

9,887, J. Rust, Colouring Paints, Cements, &c.—13,472, J. Coppard, Closing or Opening Doors, Windows, &c.—14,422, G. Newman, Door Springs and Checks.—1,480, G. and C. Duffy, Window and Door Fasteners.—1,484, R. Holmes and B. Sugden, Weather Bars or Draught Excluders for Doors or Hinged Windows.—4,900, H. Lake, Weather Strips for Doors, Windows, &c.—4,901, H. Lake, Weather Strips for Doors, Windows, &c.—5,741, H. Lake, Metal Lattice-work or Trellis-work.

RECENT SALES OF PROPERTY.

ESTATE EXCHANGE REPORT.

MAY 14.

By H. C. NEWSON.

City, King William-street—Profit rental of £450 a year, term 26 years	£5,800
An improved rent of £220, term 27 years	2,900
St. Pancras—Ground-rents of £30, reversion in 17 years	1,270
City-road—Ground-rent of £5, reversion in 49 years	130
Southwark—6, Melior-street, freehold	910

By A. CHANCELLOR.

West Molesey—A plot of freehold land, 1a. 2r. 3p.	500
Richmond Hill—Improved ground-rents of £44, term 76 years	980

By HORNE, SON, & EVERSFIELD.

Penge—164, Beckenham-road, term 75 years, ground-rent, £8	465
Marylebone—101 and 107, Carlisle-street, 33 years, ground-rent £10	680
116, Church-street, 33 years, ground-rent £6. 6s.	335
70, Market-street, 33 years, ground-rent, £10	265
Paddington—24, South Wharf-road, 33 years, ground-rent £5	305
Battersea, Queen's-road—Bakery, with stabling, &c., 85 years, ground-rent £80	3,500

By EGERTON & BREACH.

Twickenham—Ground-rent of £8, reversion in 68 years	170
West Croydon—20 and 21, Croydon-grove, 58 years, ground-rent £7. 7s.; and 60, Croydon-grove, 62 years, ground-rent 3s. 13s. 6d.	610

By SINCLAIR & SON.

Canonbury—103, St. Paul's-road, 14 years, ground-rent £8	250
Kingsland—19, Downham-road, 40 years, ground-rent £13. 10s.	345
56, Downham-road, 29 years, ground-rent £4. 10s.	390
58, Downham-road, 29 years, ground-rent £4. 10s.	320
Dalston—93, Holly-street, 29 years, ground-rent £5; and 95 to 103 odd, Holly-street, 29 years, ground-rent £10	950

MAY 15.

By MONTAGU & ROBINSON.

Hackney—376, Mare-street, freehold	1,600
Maida Vale—No. 55, term 83 years, ground-rent £17	1,110

By J. POUSTY.

Holborn—29, 30, and 31, Great Saffron-hill, 78 years, ground-rent £75	620

By WOODS & SNELLING.

Wapping—10, 12, and 14, Anchor and Hope-alley, freehold £420

By H. RUTLEY.

Kentish Town—57 and 59, Kentish Town-road, 41 years, ground-rent £10s. 10s. 645

By JONES & SON.

Bow—306, Roman-road, freehold 1,210
Limehouse—149, Salmon's-lane, freehold 590
Poplar—85, Kerbey-street, freehold 300
Hoxton—80 and 82, Nile-street; and 10, Constance-street, 20 years, ground-rent £10 580

By THURGOOD & MARTIN.

Pimlico—24, Cambridge-street, 49 years, ground-rent £7 550
Burstow, near Horley—Tridle's Farm, 51a. 0r. 23p., freehold 1,620
A freehold plot of land, 3a. 2r. 9p. 280
Freehold cottage, and 2 acres 180
Lewisham—The Woodlands, and 1a. 0r. 31p., freehold 1,400
Old Kent-road—32 and 34, Mawbey-road, freehold 750
Borough—19 to 27 odd, Tabard-street, with stabling, freehold, area 16,380 ft. 7,000

By C. & H. WHITE.

Walworth—55 and 57, Merrow-street, 20 years, ground-rent £28 145
South Lambeth—24 to 31, Gloucester-street, 67 years, ground-rent £24 2,400
Oxford-street—5, Noel-street, freehold 950
No. 41, Oxford-street, freehold 3,500
Shepherd's Bush—Minford-gardens, ground-rents of £11, reversion in 80 years 255
Shepherd's Bush-road, ground-rents £12. 10s., reversion in 80 years 340
Turnham Green—Belmont-terrace, ground-rents of £67, reversion in 80 years 885

By DRIVER & CO.

Bedford-row—An improved rent of £129. 10s., term 9 years 800

By DEBENHAM, TEWSON, & CO.

Lee—The residence called Ash Lawn, with grounds, 42 years, ground-rent £16 1,060

By E. & F. SWAIN.

Bayswater—38, St. Petersburg-place, 25 years, ground-rent £2. 18s. 550

By Messrs. WOOD (at Loughton).

Loughton—Three plots of freehold land 300

MAY 16.

By WEATHERALL & GREEN.

King's Cross—265, Pentonville-road, the lease of, term 7 years 105

By WORSFOLD & HAYWARD.

Islington—An improved ground-rent of £66, term 53 years 1,280

By J. A. JONES.

Pimlico—73 and 75, Tachbrook-street, 38 years, ground-rent £16 1,090

By W. A. BLAKEMORE.

Edgware-road—37 and 38, Brown-street, 12 years, ground-rent £13. 2s. 6d. 440
Blandford-square—17 and 18, Sherborne-street, 53 years, ground-rent £13. 6s. 1,225
St. John's Wood—56, Wellington-road, 32 years, ground-rent £9. 8s. 690

By INMAN, SHARP, HARRINGTON, & ROBERTS.

Mile End—20, 22, and 25, Willow-street, 42 years, ground-rent £4. 10s. 565
Commercial-road—28 and 30, Grosvenor-street, 11 years, ground-rent £3 90
102 and 104, Rhodeswell-road, 26 years, ground-rent £3 290
Poplar—28, 30, and 32, Lion-street, 65 years, ground-rent £7 370
97 and 99, Kerbey-street, 54, years, ground-rent £6 270

By FAREBROTHER, ELLIS, & CO.

Kentish Town—Ground-rents of £25. 4s., reversion in 68 years 640
Weedington-road, ground-rents of £6. 6s., reversion in 68 years 155
Carlton-road, ground-rents of £50. 8s., reversion in 68 years 1,273

MAY 17.

By DYER, SON, & HILTON.

Lee, Eltham-road—Bedford House, 71 years, ground-rent £18 550

By WHITE, BERRY, & TAYLOR.

Harewood-square—Nos. 12 and 13, term 53 years, ground-rent £40 2,420
Cavendish-square—28, Queen Ann-street, 5½ years, ground-rent £10 520
Hyde Park—2, Stanhope-street, 46 years, ground-rent £41 4,000

By HOBSON, RICHARDS, & CO.

Finsbury—3, Oliver's-yard, 40 years, ground-rent £40 685
Hackney Wick—188, Cassland-road, 56 years, ground-rent £7 335
Victoria Park—19, Cadogan-terrace, 66 years, ground-rent £6 275

By CRAFTER, HARRIS, & CO.

Peckham—An improved rental of £69, term 38 years 915

By NEWBON & HARDING.

Canonbury—50, Canonbury Park North, 48 years, no ground-rent 595
74, Halton-road, 30 years, ground-rent £6. 10s. ... 285
Stoke Newington—102, Hawkesley-road, 85 years, ground rent £5. 10s. 240
Hoxton—118, Wenlock street, 54 years, ground-rent £4. 4s. 380
Willesden—46 and 47, Ranelagh-road, freehold 500

By COLLETT & COLLETT.

Bayswater—12, Archer-mews, 55 years, ground-rent £3 95

By H. J. BLISS & SONS.

Brixton—131, Akerman-road, 75 years, ground-rent £5 300
Bow—3 to 9 odd, Three Mill-lane, freehold 870
17, 19, and 21, Three Mill-lane, freehold 665
Bethnal Green—4 to 8, Brierley-street, 37 years, ground-rent £15 1,005
9 to 12, Brierly street, 37 years, ground-rent £12.. 820
2 to 24, Baxendale-street, 34 years, ground rent £50. 8s. 2,910
11 to 21 odd, Bacon-street, 57 years, ground-rent £20 1,350

By E. STIMSON.

Gipsey Hill—Ground-rents of £34s. 10s., reversion in 34 years £1,170
Ground-rents of £4, reversion in 30 years 140
Camberwell-road—No. 32A, freehold 1,150
Walworth, 3 to 7, Blucher-street, freehold 1,710
4 to 10 even, Hill-street, freehold 880
10 and 12, Royal-road, freehold 590
Hill street, ground-rent of £27. 6s., reversion in 1 year 1,860
Ground-rent of £54, reversion in 2 years 3,115
Ground-rent of £64, reversion in 5 years 1,980
Royal-road, ground-rent of £20. 9s., reversion in 1 year 2,170
Cook's road, ground-rent of £18. 12s., reversion in 2 years 1,355
10 and 12, Cook's road, freehold 320

By DEBENHAM, TEWSON, & CO.

Whitechapel, Tower-hill, Trinity-square—The Old George Public House, freehold 4,020
Trinity-square—A plot of freehold land, 906 ft., freehold 1,500
Haydon-street—A plot of freehold land, 2,060 ft., freehold 3,000
38, Haydon-street, freehold 695
29, Minories, freehold 1,700
The freehold site of the Three Lords Public House 3,500
The freehold site, containing 1,970 ft. 3,750
Two freehold sites, containing an area of 3,515 ft. 6,400
High-street—Freehold site, area 1,200 600

MAY 18.

By W. SIMMONDS.

Peckham—188, Sumner-road, freehold 360
Cator-street—Ground-rent of £9, reversion in 55 years 225
Commercial-road—Ground-rent of £40. 1s., reversion in 55 years 1,260

By RUSHWORTH & STEVENS.

Oxford-street—No. 185, freehold 6,000
Sunbury-on-Thames—Church Villa, with stabling, copyhold 1,000
Chelsea—70 and 71, Cheyne Walk, freehold 1,020

By E. HOLSWORTH.

Oxford-street—50, Great Portland-street, the lease of, term 10 years 15
Upper Holloway — 33, Milton-grove, 86 years, ground-rent £10 105

By W. W. JENKINSON.

Deptford—17 and 19, Gosterwood-street, 78 years, ground-rent £10 455
25 and 27, Gosterwood-street, 78 years, ground-rent £10 440
Rotherhithe, Cope-street — Ground-rent of £20, reversion in 61 years 350
New-road—A plot of freehold land 120
Godstone, Carlton-road—A plot of freehold land, about half an acre 19
Finchley, near Abercorn-road—A plot of freehold land 16

By R. REID.

Stockwell—26, Bellefields, 76 years, ground-rent £5. 10s. 230
Hampstead Heath—34 to 43, Devonshire Hill, freehold 6,145
A plot of freehold garden ground 410
A plot of land and part of a residence, freehold ... 700
Cossey Cottage and Sydney House, freehold 2,130
Pentonville—11 to 19 odd, Winchester-street; and 8 to 13 and 13a, North-street, and plot of land, freehold 3,130
4, North-street, and a plot of land, area 5,192 feet, freehold 780

MEETINGS.

SATURDAY, MAY 26.

Association of Municipal and Sanitary Engineers and Surveyors.—Midland Counties District Meeting at Leamington.

St. Paul's Ecclesiological Society.—Visit to West Wickham and Addington, under the direction of Mr. George Clinch. The stained glass at West Wickham will be described by Mr. Arthur Taylor, and Mr. S. W. Kershaw, F.S.A., will furnish some Historical Notes on the monuments at Addington. Train leaves Cannon-street at 3·7 p.m.

MONDAY, MAY 28.

Royal Institute of British Architects.—Mr. F. Meadows White, Q.C., *Hon. Associate*, on "The Most Recent Legal Decisions Affecting Architects." 8 p.m.

Surveyors' Institution.—Annual General Meeting. 3 p.m. The Annual Dinner, Holborn Restaurant. 6·30 p.m.

TUESDAY, MAY 29.

Institution of Civil Engineers.—Annual General Meeting to consider the Report of the Council on the state of the Institution, and to elect the Council and Officers for the ensuing year. 8 p.m.

Royal Institution.—Mr. Sidney Colvin, M.A., on "Conventions and Conventionality in Art." 3 p.m.

WEDNESDAY, MAY 30.

Architectural Association.—Annual Dinner, Holborn Restaurant.

THURSDAY, MAY 31.

Society of Telegraph-Engineers and Electricians.—Professor Silvanus P. Thompson, B.A., on "The Influence Machine from 1788 to 1888." 8 p.m.

Society of Antiquaries.—8·30 p.m.

Edinburgh Architectural Association.—Annual Meeting: President's Closing Address. 8 p.m.

SATURDAY, JUNE 2.

Edinburgh Architectural Association.—Visit to Elie and neighbourhood.

Architectural Association.—Visit to Holmbury St. Mary (see advertisement on front page of this number of the *Builder*).

Miscellanea.

Competition: St. Gregory's Schools, Longton, (Staffs.).—Competitive designs for Schools at Longton, to accommodate 750 chlidren, have been submitted, and we are informed that those of Mr. Geo. H. Cox, architect, of Birmingham, bearing the motto "Experience," have been accepted.

The Metropolitan Railway Company's Surplus Lands.—One of the largest sales of building sites in the metropolis which has for some time past taken place, was held at the Auction Mart last week, when Messrs. Debenham, Tewson, & Co. submitted to competition the surplus properties of the Metropolitan and Metropolitan District Companies arising out of the Inner Circle Completion lines. There were twenty-three lots, comprising building sites varying in area from about 800 to 50,000 ft., having frontages to the new street from Great Tower-street to Tower-hill, Seething-lane, Trinity-square, Trinity-place, Minories, the Crescent, America-square, Aldgate, and Whitechapel High-street. The property also included several warehouses and shops, and two public-houses. The particulars drew attention to the fact that the properties were chiefly freehold, the remainder being leasehold for 999 years at the nominal rents of one shilling per annum, being therefore practically equal to freehold. As regarded several of the lots, it was pointed out that the purchasers would be allowed to build on the railway side walls. The first portion of the property submitted was that having frontages from the new street from Great Tower-street to Tower-hill, the auctioneer observing that these properties were likely to be materially increased in value by the construction of the New Tower Bridge and the extensive street improvements which had already been carried out. The sale commenced by the offer of a building site on the north side of the new street, to which it has a frontage of 40 ft., the site embracing an area of 1,500 ft., including the railway side wall, on which the purchaser would be allowed to build. It was stated that the foundations for a new building had already been constructed on this lot. The biddings commenced at 5,000*l.*, and 6,900*l.* having been reached without any further advance, the property was withdrawn, the auctioneer observing that 4*l.* a foot for property so favourably situated was much below its value. The next lot, having frontages to Seething-lane, the new street, and Trinity-square, Tower-hill, was also withdrawn at 32,000*l.* A fully-licensed public-house in Trinity-square, known as "The Old George," let on a rental of 125*l.* a year, was sold for 4,020*l.*, as also a corner building site adjoining the preceding lot, covering an area of 906 ft., which realised 1,500*l.*, being less than 2*l.* a foot. The next three lots in the Minories, containing respectively 2,600 ft., 1,600 ft., and 1,800 ft., were withdrawn at 1,950*l.*, 1,650*l.*, and 3,000*l.* Two plots of building land in Haydon-street, Minories, containing 2,060 ft. and 748 ft., were sold for 3,000*l.* and 695*l.*; and a freehold house and shop in the Minories, covering an area of 925 ft., and let on lease to Mr. Willis, organ builder, was sold for 1,700*l.* A corner site in the Minories, near Aldgate, containing 1,970 ft., was sold for 3,700*l.*; and another plot adjoining, containing 2,230 ft., realised 3,800*l.* Two of the largest, both in the Minories, the one containing 14,180 ft., and the other 23,900 ft., were withdrawn at 15,000*l* and 34,000*l.* respectively. Nine of the lots out of the entire number offered were sold for a total sum of 24,065*l.*, whilst the aggregate amount of the biddings for the unsold lots was 114,980*l.*

Healthy Clothing.—At a meeting of the Parkes Museum, 74a, Margaret Street, W., on Thursday afternoon, the 17th May, a lecture was delivered by Mr. Lewis R. S. Tomalin on "Healthy Clothing." The lecturer pointed out that:—1. Nature has shown us in the animal world the principles of healthy clothing; in other words, the animals of to-day are furnished with the "survival of the fittest" clothing. 2. Applying these principles to the human body, we are led to consider the nature, function, and needs of the skin. 3. Examining what is scientifically the best material with which to cover the skin, having regard to its nature and functions, we demonstrate the objections to materials of vegetable fibre, and the advantages of pure porous wool, not merely for underwear, but for the entire covering by day and night. 4. The various articles required for covering the body were discussed in detail; objections to the use of all wool coverings were weighed and refuted, and the conclusion arrived at was that the study of the skin and its functions is essential (a) to determine what healthy clothing is, (b) to maintain the body in a sound condition by so covering it that it will be protected from chill, while the vital function of the skin is hampered as little as possible.

A New Canal between the North Sea and the Baltic.—The German canal now in course of construction between the North Sea and the Baltic is threatened with a formidable competitor, a Danish engineer, Herr C. F. Glœsner, with whom is a strong financial syndicate, chiefly consisting of English and French financiers, having obtained a concession from the Danish Government for the construction of a canal across Denmark from the North Sea to the Baltic, a scheme greatly favoured by the Government in question. The plans, which have been fully elaborated, provide for a canal from the Jammer Bay on the west coast of Jutland, *viâ* the Limfjord, intersecting that province as far as Hals Barre, and with a canal thence to the Cattegat. The width of the canal at the bottom is to be 30 ft., and at the surface 180 ft., the depth 24 ft., and at every 2,000 yards there are to be basins for the purpose of enabling ships to pass each other. The cost of the undertaking is estimated at 2,000,000*l.*, and the work is to be finished in five years. A considerable amount of the capital has already been secured. With a charge of 5d. or 6d. per ton on the vessels using it, the annual gross receipts are estimated at 220,000*l.*, and the net profit at 100,000*l.*, being 4½ per cent. interest on the capital. It is believed that this canal will be preferred to the German one by vessels coming to or going from the east coast of England and Scotland, being more in their track. It is, moreover, argued that the entrance to the latter will be so difficult that few vessels, except those coming from Hamburg, will care to avail themselves of it. A large harbour of refuge is also to be constructed at the North Sea entrance. Naturally the scheme is viewed with great apprehension in Germany, particularly as the new canal will be largely in French hands.

The Association of Public Sanitary Inspectors.—The third provincial meeting of this Association was held on Saturday last, in the lecture hall at the Free Library, William Brown-street, Liverpool. There were about sixty members present. Mr. Hugh Alexander, Chairman of Council, presided, and on the platform were Dr. A. Carpenter, President, and Dr. J. Stopford Taylor, Vice-President, of the North-Western District Branch; Dr. Vacher, Medical Officer of Health, Birkenhead; Mr. R. S. Reynolds, Veterinary Superintendent, Liverpool; Alderman Grindley, and Councillors Woodcock and Duncan. Letters expressing regret at inability to be present were read from Mr. Edwin Chadwick, C.B., President of the Association, and Sir Robert Rawlinson. A cordial welcome having been given to the Association by Alderman Grindley, as Deputy-Chairman of the Health Committee, the Chairman delivered an address on the duties, responsibilities, and remuneration of sanitary inspectors. On the motion of Dr. Carpenter, a resolution in support of the objects of the Association was agreed to.

Archdeacon Fearon Memorial Schools, Loughborough.—The inhabitants of Loughborough, as a memorial to the late Archdeacon of Leicester (the Ven. Henry Fearon) decided some time ago to erect a memorial hall and schools, to be used as the Sunday schools of the parish of All Saints, of which he was the rector for upwards of forty years. The committee have now secured sufficient funds to permit a commencement of the work, on plans prepared by Mr. George Hodson, of Loughborough. The building will comprise a memorial hall, school-rooms, and six large class-rooms. The buildings will be in the Tudor style. They will be built of the local red brick and yellow Mansfield stone, the various ornamental parts of red terra-cotta being manufactured by the Hathern Station Brick Company. Mr. William Needham, of Loughborough, is the contractor for the first portion of the work.

Church Clock, Warslow, Staffordshire. A large new clock has just been erected in the parish church here by Messrs. John Smith & Sons, Derby. It strikes the hours, and shows time upon three dials, each 4 ft. across. The old clock and bells were burnt in the tower a short time ago.

New Municipal Buildings for Tamworth.—At the last meeting of the Tamworth Town Council it was resolved to accept the recommendation of the Jubilee Committee to build new municipal buildings and public hall, from plans by Mr. T. W. F. Newton, architect, Birmingham.

Civil and Mechanical Engineers' Society.—The annual dinner of this society was held at the Holborn Restaurant on the 23rd inst. The president, Mr. R. E. Middleton, M.Inst.C.E., occupied the chair, and a large number of members and visitors were present, among whom were Sir William Charley, Q.C., Mr. Richard Sennett, M.I.C.E. (chief engineer to the Admiralty), Mr. S. H. Terry, of the Local Government Board, Mr. W. W. Beaumont, M.I.C.E. (joint editor of *The Engineer*), Mr. G. H. Pearson, and Mr. G. B. Oughterson, M.I.M.E. The usual loyal toasts having been duly honoured, Mr. G. H. Pearson proposed "Success to the Civil and Mechanical Engineers Society," coupled with the name of the President. The president responded, and in the course of his remarks referred to the useful work which the society has been able to do in the professions from which its members are drawn, to its friendly character, and to the assistance which it is able to afford, both intellectually and materially, to its younger members; and he exhorted his hearers to bear this valuable quality of the society in mind, and to do their best to promote its interests. Other toasts followed.

Congregational School Chapel, Whetstone, N.—This building was opened, on May 2, for public worship. The style of the building is a simple treatment of the Early Gothic. It is faced with white bricks, with Bath stone dressings and tiled roofs. Accommodation is afforded in the upper floor of the school chapel, 60 ft. by 35 ft., for about 350 adults, with a vestry, tea-making room, &c. Two staircases, stated to be fireproof and of ample width, lead down from this floor to spacious lobbies. On the ground-floor will be an infants' class-room, 25 ft. by 18 ft.; a lecture-room, 30 ft. by 35 ft., with vestry, 14 ft. by 11 ft., and five class-rooms, 13 ft. 9 in. by 9 ft. 6 in. each. A corridor, 6 ft. wide, leads to lecture-room and class-rooms. The contract for the main building, including additional class-rooms in the rear, lighting, heating, &c., amounts to 2,359*l.* The architect is Mr. George Baines, of London, whose designs were accepted in a limited competition. The builder is Mr. R. G. Battley, of Old Kent-road, S.E. The seating in the school chapel is in pitch pine framing with white panels, varnished, and was made by Messrs. Hammer & Co., of Bermondsey.

Another New Theatre for London.—Mr. Gilbert's new theatre for Mr. John Hare is to be called "The Garrick." The theatre, which is situated in the Charing Cross-road, immediately behind the National Gallery, was commenced on the 14th inst. It is about the same size as the St. James's, and consists of pit and stalls, dress circle, upper boxes, and gallery. The whole of the building, both externally and internally, is in the Italian Renaissance style. The system of fireproof construction used by Mr. Emden at Terry's Theatre and elsewhere is to be adopted. We are assured that every care has been taken to ensure the safety of the public by providing large and easy entrances and exits, besides which the auditorium is isolated. The seating accommodation is about 1,100 persons. Mr. Walter Emden is the architect. Mr. George Harrison, A.M.I.C.E., of 4, Great George-street, Westminster, has arranged the sprinklers and fire appliances. Messrs. Stoner are the quantity surveyors, and Messrs. Peto Bros. are the contractors.

Sanitary Institute of Great Britain.—At the Annual General Meeting, held at the Parkes Museum on Wednesday, May, 16th, Professor W. H. Corfield, M.A., M.D., Chairman of Council, in the chair, a report was presented by the Council on the work of the Institute during the last year, and on the Congress at Bolton in the autumn of 1887. The Chairman gave an address, and the officers for the ensuing year were elected. The President is his Grace the Duke of Northumberland, and the trustees are Sir John Lubbock, Dr. B. W. Richardson, F.R.S., and Mr. Thomas Salt, M.P.

Soudan War Special Correspondents' Memorial for St. Paul's Cathedral, London. — This "latten" brass memorial, designed by Mr. Herbert Johnson, and carved and engraved by Mr. Gawthorp, of Long-acre, London, has been on view at the office of *The Graphic*, 190, Strand. The brass (74 by 45 in.) has four panels covered in bas-relief, with an engraved list of names, and is mounted on a slab of rouge royal marble.

St. James's Church, Moss-side, Manchester, was consecrated on the 3rd inst. It is of late Decorated style, comprising nave, 93 ft. by 33 ft., and 56 ft. to the ridge, with north and south aisles, spacious chancel, organ-chamber, and vestries for the clergy and choir. The campanile at the south-west forms a prominent feature, rising to the height of 125 ft. Spacious entrance porches are provided at the west end, also separate entrances to the choir and clergy vestries, &c. Externally the church is faced with Ruabon bricks, terra-cotta, and Runcorn stone. The internal woodwork is of pitch pine, with wood-block floors. The heating is by means of hot air. The windows are of Geometric design, in cathedral tinted glass; the centre window of the chancel is of stained glass, in memory of the late Bishop of Manchester. The expenditure has been about 5,500*l.*, with accommodation for 800 persons. The work has been executed by Messrs. Robert Neill & Sons, contractors, Manchester, under the superintendence of the architect, Mr. John Lowe, Manchester.

Royal Meteorological Society.—At the usual monthly meeting of this society, held on the 16th inst., at the Institution of Civil Engineers, 25, Great George-street, Westminster, Dr. W. Marcet, F.R.S., President, in the chair, the following communication was read:—"Report of the Wind Force Committee on Experiments with Anemometers conducted at Hersham," by Mr. G. M. Whipple, B.Sc., and Mr. W. H. Dines, B.A. A whirling apparatus, with arms 29 ft. radius, was rotated by means of a small steam-engine. On the arms of the whirler four different anemometers were placed. Each experiment lasted fifteen minutes, the steam pressure remaining constant during the run. For the Kew Standard Anemometer, with arms 2 ft. long, the experiments give a mean value for Robinson's factor of 2·15; and for two smaller instruments the factor is 2·51 and 2·96. Mr. Dines's Helicoid Anemometer gave very satisfactory results, the mean factor being 0·996.

Congregational School, Sale (Cheshire). Messrs. Cross & Bell, builders, have just commenced a considerable addition to the Congregational Church and School at Sale, in the shape of an addition to the main schoolroom itself, which will almost double its size, and the erection of six class-rooms, organ-chamber to the church, and a library. The amount of the contract is 917*l.*, and the work is being carried out from designs by and under the superintendence of Mr. Robt. J. McBeath, architect.

Humberstone Drainage Works.—Work is being busily pushed forward in the construction of the Humberstone and Evington Main Drainage scheme, for the Billesden Union Sanitary Authority, near Leicester. Nearly 200 men are daily employed. The works consist of brick, concrete, and pipe sewers of some ten miles in extent. Mr. J. B. Everard, M.Inst.C.E., of Leicester, is the engineer. Messrs. Meats Bros., of Nottingham, are the contractors, and Mr. William F. Ault is the clerk of the works.

"Iron Buildings at the Anglo-Danish Exhibition."—Messrs. North & Sons write, in reference to the letter under this head in our last issue (p. 364), that it was quite correct to say that they had supplied iron roofing to a firm of sanitary engineers to this exhibition, but, by an omission in the paragraph which called forth the letter, it ought to have been said that they had erected a good number of the iron buildings at the Anglo-Danish *and Italian Exhibitions*.

New Cemetery for Battersea.—The Battersea vestry have decided upon the construction of a new cemetery for the parish. The site proposed is in the parish of Morden, about six miles from the centre of Battersea, and known as Hobble's Farm. It consists of 125 acres, and has been offered to the vestry at 130*l.* per acre. It is easily accessible by the main road to Morden, and from Raynes Park railway station. A loan of 25,000*l.* is to be applied for to purchase the site, and for the construction of the cemetery.

The Employers' Liability Bill.—The Government measure for amending the law relating to the liability of employers for injuries to workmen passed its second reading before the House of Commons adjourned for the Whitsun recess. We printed the text of the Bill in the *Builder* for April 21 last, pp. 287-88.

Charlestown Congregational Chapel, Manchester, was recently opened, after structural alterations and redecoration of the entire building. The chapel was originally built by Messrs. Paull & Aitkin, architects, the design being of an early Fourteenth-century Gothic type. The dado is painted in deep terra-cotta colour with a neat stencil border, the wall space a very light tint of the same colour, the ornamental round windows being stencilled in umber with fitch lines of vermilion and black. At the top of the wall is painted a conventional frieze, 2 ft. deep, in light red, umber, and black, on a cream background. This frieze is run between the roof principals, and continued round the east end of the chapel abutting against the hood-mould of the arch over the organ recess. The awkward space formed by this arch was treated by running horizontal lines on the same cream background as the frieze, and stencil ornament at intervals, in quiet colour, the upper row of lines being finished with a battlement. Between these bands is stencilled an uncommon form of fleur-de-lis. This treatment was suggested from what may be seen in most Italian churches, but instead of painted bands, different coloured marbles are used. The doorways being very plain, and with no mouldings to relieve the pointed arches, it was thought advisable to frame them into a square form, the top being embattled, and a spandrel thus obtained being filled with a foliated ornament. The panels of the roof are distempered a light silver green, and bands of terra-cotta and umber run from end to end of the building between principals, except the bottom panels, which would have been so much broken by the dormers, that it was thought well to run these bands vertically. The whole of the pitch-pine woodwork, including pews, pulpit, and gallery front, is stained and polished a greenish tone of walnut colour. The decorations have been most carefully carried out by Mr. Reuben Bennett, decorator, under the superintendence of Messrs. E. & F. Hewitt, architects, Manchester.

New Church, Tidenham (Gloucestershire).—On the 5th ult. a new church, which has been built at the sole cost of the Rev. Fielding Palmer for the outlying district of the Chase, in this large parish, was consecrated by the Bishop of Gloucester and Bristol. The church, which is built of stone dug on the Chase, from designs by Mr. Gambier Parry, is in the Early English style of architecture, and is dedicated to St. Michael and All Angels. The altar, which is of panelled oak, deeply recessed with walnut shafts, was designed by Mr. Gambier Parry, and executed by Messrs. Jones & Willis, of London and Birmingham. Behind the altar, as reredos, are three panels for mosaics. These are the work of Messrs. Powell, and are the gift of the wife the founder of the church.

Portsmouth New Town Hall.—The Committee have accepted the tender of Mr. J. W. Benson, of London, for a large clock to show time on four dials, 11 ft. in diameter, glazed with opal glass for illumination by night, to strike the hours on a bell of four tons, and chime the Cambridge quarters on four smaller bells.

The New Borough Hospital, Ashton-under-Lyne, and the new Union Workhouse Hospital, Ashton-under-Lyne, are both being warmed and ventilated by means of Shorland's patent warm-air Manchester stoves, supplied by Mr. E. H. Shorland.

PRICES CURRENT OF MATERIALS.

TIMBER.	£.	s.	d.	£.	s.	d.
Greenheart, B.G. ....ton	6	10	0	7	10	0
Teak, E.I. ....load	8	0	0	12	10	0
Sequoia, U.S. ....foot cube	0	2	3	0	3	0
Birch, Canada ....load	2	15	0	4	15	0
Fir, Dantsic, &c.	2	0	0	4	0	0
Oak ,, ...	2	0	0	4	10	0
Canada	4	0	0	6	10	0
Pine, Canada red	2	10	0	3	10	0
,, yellow	2	10	0	4	0	0
Lath, Dantsic ....fathom	3	10	0	5	0	0
St. Petersburg	5	0	0	6	0	0
Wainscot, Odessa, crown	2	10	0	3	0	0
Deals, Finland, 2nd and 1st...std.100	8	0	0	9	10	0
,, 4th and 3rd	6	10	0	7	10	0
Riga	6	0	0	7	10	0
St. Petersburg, 1st yellow	9	10	0	14	10	0
,, 2nd ,, ...	8	0	0	9	0	0
,, white	7	0	0	10	0	0
Swedish	7	0	0	15	10	0
White Sea	8	0	0	17	0	0
Canada, Pine, 1st	14	0	0	23	0	0
,, ,, 2nd	9	0	0	15	0	0
,, ,, 3rd, &c.	7	6	0	9	10	0
,, Spruce, 1st	8	0	0	9	10	0
,, 3rd and 2nd	6	0	0	7	10	0
New Brunswick, &c.	6	0	0	7	5	0
Battens, all kinds	4	10	0	11	0	0
Flooring Boards, sq., 1 in., prepared, First	0	10	0	0	12	0
Second	0	7	0	0	9	6
Other qualities	0	4	6	0	6	6
Cedar, Cuba ....foot	0	0	3½	0	0	4
Honduras, &c.	0	0	3½	0	0	3½
Australian	0	0	2½	0	0	3½
Mahogany, Cuba	0	0	4½	0	0	6
St. Domingo, cargo average	0	0	4½	0	0	6
Mexican ,, ...	0	0	4	0	0	4½
Tobasco ,, ...	0	0	4½	0	0	5½
Honduras ,, ...	0	0	4½	0	0	5½
Rose, Rio ....ton	8	0	0	11	0	0
Box, Turkey	5	0	0	12	0	0
Walnut, Italian ....foot	0	0	4	0	0	5½
METALS.						
IRON—Bar, Welsh, in London...ton	4	17	6	5	0	0
,, ,, at works in Wales ...	4	7	6	4	10	0
,, Staffordshire, London....	5	5	0	7	0	0
COPPER—						
British, cake and ingot.... ton	81	0	0	0	0	0
Best selected	82	0	0	0	0	0
Sheets, strong	88	0	0	0	0	0
Chili, bars	82	0	0	82	10	0
YELLOW METAL ....lb.	0	0	7½	0	0	7½
LEAD—						
Pig, Spanish ....ton	12	5	0	0	0	0
English, common brands	12	10	0	0	0	0
Sheet, English	13	10	0	0	0	0
SPELTER—						
Silesian, special ....ton	16	15	0	17	0	0
Ordinary brands	16	10	0	16	15	0
TIN—						
Straits ....ton	85	0	0	0	0	0
Australian	85	0	0	0	0	0
English Ingots	95	0	0	0	0	0
ZINC—						
English sheet ....ton	21	0	0	21	10	0
OILS.						
Linseed ....ton	18	12	6	18	15	0
Cocoanut, Cochin	27	0	0	0	0	0
Ceylon	23	10	0	23	15	0
Palm, Lagos	21	0	0	0	0	0
Rapeseed, English pale	24	10	0	0	0	0
,, brown	23	0	0	0	0	0
Cottonseed, refined	20	15	0	0	0	0
Tallow and Oleine	25	0	0	45	0	0
Lubricating, U.S.	5	15	0	6	0	0
,, refined	7	0	0	12	0	0
TURPENTINE...						
American, in casks....cwt.	1	9	0	0	0	0
TAR—						
Stockholm ....barrel	0	15	0	0	0	0
Archangel	0	9	6	0	0	0

CONTRACTS.

Epitome of Advertisements in this Number.

Nature of Work, or Materials.	By whom required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.	Page.
Paving Works	Walthamstow Local Brd	H. S. Ridings	May 25th	ii.
Engineering Works to Laundry, &c.	Gateshead Union	Morton, Newcombe, & Co.	May 29th	ii.
Painting Works and Repairs, Stockwell	Met. Asylums Board ...	Keith D. Young	May 31st	x.
Turntables	Barry Dock & Rail. Co.	Barry & Brunel	June 1st	ii.
Weigh Bridges	do.	do.	do.	ii.
Mooring Buoys	do.	do.	do.	ii.
New Church, Carmarthen	The Vicar	E. Collier	do.	ii.
Sewering and Making-up Roads	Hendon Local Board ...	S. S. Grimley	June 4th	x.
Making-up and Paving Road	Wandsworth Bd. of Wks	*Official*	June 5th	x.
Repairing and Cleaning Stone & Marble Work	Met. Board of Works...	do.	do.	x.
Boundary-Wall, &c.	Edmonton Union	T. E. Knightley	do.	x.
Paving Streets, &c.	Rotherhithe Vestry	*Official*	do.	xii.
Public Library and School of Art	Hertford Cor.	W. H. Wilds	June 6th	xii.
Cleansing and Watering	Bristol U. S. A.	*Official*	do.	ii.
Additions to National School	Alresford School Board	W. H. Hunt	do.	x.
Boys' School	Wanstead School Board	Bressey & L. Walters...	June 8th	x.
Rebuilding Bridge, &c.	County of Westmoreland	J. Bentley	June 9th	ii.
Alteration, &c., to Brecon Town-hall	The Committee	*Official*	June 11th	xii.
Roads and Footpaths, Sewers, &c.	Edmonton Freehold Land Society, Lim....	H. W. Dobbs	June 12th	x.
Laundry, with Cottage	Worthing Sanitary Steam Laundry Co., Lim....	W. W. Smith	do.	x.
Painting Works, Winchester Barracks	War Department	*Official*	Not stated...	ii.
Painting, Paperhanging, &c., Newcastle	do.	do.	do.	ii.
Limewhiting and Painting, Birmingham Dist.	do.	do.	do.	ii.
Painting Barracks, Aldershot	do.	do.	do.	ii.
Shops, Acton	....	E. Monson, Jun.	do.	xii.

TENDERS.

[Communications for insertion under this heading must reach us *not later than* 12 *Noon on Thursdays.*]

ACTON.—For alterations and additions to Askew House, for Mr. John Unite. Mr. Charles J. Gladman, architect, 10, Bush-lane, Cannon-street :—

Harris & Sons, Upper Berkeley-street	£522 10 0
Longmire & Co., Osnaburgh-street* ...	515 0 0

* Accepted.

BERMONDSEY.—For new shop on forecourt and other works at 53, Southwark Park-road, S.E., for Mr. J. Morgan. Mr. E. Crosse, architect, 32, Bermondsey-square, S.E. :—

W. & R. Evans	£198 0 0
W. & F. Croaker	174 0 0
Excell & Lister	161 15 0
W. F. Russell (accepted)	158 0 0

BRISTOL.—For the erection of new day industrial school, for the Bristol School Board. Messrs. J. W. Trew & Sons, architects, 22, Broad-street, Bristol. Quantities by Mr. Wm. L. Bernard :—

E. Walters	£3,595 0 0
Stephens & Bastow	3,448 0 0
W. Cowlin & Sons	3,447 0 0
H. J. Rossiter	3,415 0 0
J. James	3,389 0 0
A. J. Beaven	3,380 0 0
H. A. Forse	3,375 0 0
T. R. Lewis	3,349 0 0
J. Wilkins & Son	3,295 0 0
Beachim & Balmont	3,286 0 0
E. Gay	3,283 0 0
G. Humphreys	3,283 0 0
Eastabrook & Sons	3,190 0 0
E. J. Davis (accepted)	3,134 0 0

[All of Bristol.]

CHELMSFORD.—For rebuilding Union House, Chelmsford. Mr. Fred. Chancellor, architect. Quantities by Messrs. R. L. Curtis & Sons :—

Holt, Croydon	£18,870 0 0
Crompton & Fawkes, Chelmsford ...	18,835 0 0
Dobson, Colchester	17,930 0 0
Hughes & Stirling, Bootle	16,786 0 0
Nightingale, London	16,740 0 0
Killby & Gayford	16,660 0 0
Diss, West Bergholt	16,524 0 0
Brown & Co., London	15,980 0 0
Balaam Bros., London	15,940 0 0
Boyce, London	15,800 0 0
Everett & Son, Colchester	15,725 0 0
Bell & Sons, Saffron Walden	15,602 0 0
Kimberley, Banbury	15,593 0 0
Stephenson, London	15,524 0 0
Kirk & Randall, Woolwich	15,330 0 0
Thackeray & Son, Huntingdon	14,899 0 0
Claridge, Banbury	14,822 0 0
Gentry, London	14,520 0 0
Shillitoe & Son, Bury St. Edmund's	14,400 0 0
Martin, Maidenhead	14,000 0 0
Longley, Crawley (accepted)	13,587 0 0

CHELSEA.—For cleansing the infirmary, Cale-street, Chelsea, for the Guardians of Chelsea. Messrs. A. & C. Harston, architects, 15, Leadenhall-street, E.C. Quantities not supplied :—

T. Bendon	£308 0 0 !
W. Dudley	271 9 0
H. Idle	259 0 0
Simmonds Bros.	237 0 0
M. McCarthy	237 0 0
Scharien & Co.	235 0 0
King & Son	223 0 0
E. F. Henderson	213 0 0
Buckeridge	208 0 0
W. H. McLachlan	170 0 0
W. Eades	165 0 0
G. Foxley, 36 and 37, King-street, W.*	157 0 0 !

* Accepted.

ENFIELD LOCK.—For the erection of a tavern at Enfield Lock (exclusive of certain works), for Mr. G. Gripper. Messrs. Searle, Halton, & Bowyer, architects, Tottenham and Enfield :—

		Extra work.
Field & Son	£1,050	£12
Linzell	993	10
Bentley	898	5
Monk	840	5
Laurence	796	6
Porter	739	17

HADLEY.—For houses and stables, Beech Hill Park, Hadley. Mr. Edwin T. Hall, architect, 57, Moorgate-street, E.C. :—

Foster & Dicksee, Rugby (accepted)	£11,995 0 0

HAMMERSMITH.—For the erection of workmen's dwellings, for Messrs. Carter, Paterson, & Co. (Limited), under the superintendence of Mr. William Eve, 10, Union-court, Old Broad-street, E.C. :—

Harris & Wardrop	£773 0 0
Adamson	753 0 0
Godfrey	746 0 0
Dabbs	732 0 0
Higgs	728 0 0
Holland, 163, Brunswick-road, E.*	673 0 0

* Accepted.

HEMEL HEMPSTEAD.—For sanitary works at King's College Convalescent Home, under the superintendence of Mr. Geo. Hubbard :—

Sear	£204 0 0
F. Curtis & Co., Burton-road, Camberwell (accepted)	172 0 0

LANDPORT (Portsmouth).—For the erection of the Home and Colonial Hotel, for Mr. W. H. Handley. Mr. Charles W. Bevis, architect :—

H. Evans & Co.	£25,175 0 0
W. Ward	24,700 0 0
D. W. Lewis	23,874 0 0
Stephens & Bastow	22,999 0 0
Martin, Wells, & Co.	22,800 0 0
Geo. Burbridge	22,440 0 0
H. J. Sanders	22,387 0 0
H. Jones	22,140 0 0
W. R. Light & Co.	22,136 0 0
Thomas P. Hall	21,900 0 0
Armitage & Hodgson	21,840 0 0
J. H. Corke, Portsmouth (accepted)	19,780 0 0

LOFTHOUSE (Yorks.).—Accepted for new chancel, Christ Church, Lofthouse, Yorkshire. Mr. William Watson, architect, Wakefield :—

J. & G. Summers, Wakefield, Stonework	£852	15	0
Watson & Worsnup, Leeds, Slating ...	33	0	0
J. S. Copley, Rothwell, Joiner's work	189	0	0
S. Atkinson, Wakefield, Plumbing, Glazing, Ironwork, &c.	48	0	0
Geo. Powell, Wakefield, Staining and Painting	5	17	0
Total	£1,128	12	0

LONDON. — For stables, High-street, Kensington. Messrs. Potts, Sulman, & Hennings, architects, 1, Furnival's Inn, E.C. :—

Richardson Bros.	£585	10	0
Allen & Son	567	0	0
Holloway Bros.	554	0	0
Smith & Son	529	0	0
Lorden & Son	509	15	0
Mattock Bros.	497	0	0

LONDON.—For alterations and fittings to 176-180, Old-street, E.C. Mr. H. W. Rising, architect :—

Harris & Wardrop, Bow	£428	0	0
Nightingale, Lambeth	397	0	0
Rayner, City	290	0	0
Walesby, Hoxton	276	0	0
Hollingsworth, High-street, Peckham	257	0	0
Perry & Co., Bow	227	0	0

LONDON.—For additions to Messrs. Brankston's tobacco factory, Carter-lane, E.C. Mr. Edwin T. Hall, architect, 57, Moorgate-street, E.C. :—

Foster & Dicksee	£3,184	0	0
A. Steer	3,130	0	0
Langdale & Hallett	3,000	0	0
E. Toms	2,769	0	0
J. & J. Greenwood	2,648	0	0
Spencer & Co. (accepted)	2,553	0	0

LONDON.—For mansions, Cadogan-square, S.W. Mr. Edwin T. Hall, architect, 57, Moorgate-street, E.C. :—

Foster & Dicksee, Rugby (accepted)	£17,862	0	0

LONDON.—For alterations and sanitary improvements to No. 258, Upper-street, N., and for the erection of a new building in connexion therewith, for Messrs. Buckle & Hughes. Mr. H. Huntly-Gordon, architect and surveyor, 26, Craven-street, Charing Cross, W.C. :—

Holliday & Greenwood	£2,188	0	0
T. Sobey	2,180	0	0
C. F. Kearley (accepted)	2,087	0	0
Coombes & Sons	1,927	0	0

LONDON.—For alterations and shop fittings at No. 137, High Holborn, W.C., for the Jersey Cream Co. Mr. William A. Burr, architect, 65, Chancery-lane, W.C. :—

Larke & Son	£360	0	0
Langham	319	0	0
Stevens Bros.	275	0	0
Stevens Bros., 148, Seven Sisters-road (amended tender)*	265	0	0

* Accepted.

LONDON.—For building the Cliftonville Tavern, South Bermondsey, for Messrs. Scott & Sayers. Mr. G. Treacher, architect, 23, Carter-lane, E.C. Quantities supplied :—

Canning & Mulluns	£3,300	0	0
Spencer & Co.	3,220	0	0
Turtle & Appleton	3,182	0	0
J. Watkin	3,140	0	0
Baalam Bros.	2,950	0	0
Richardson	2,950	0	0
Burnam & Co.	2,942	0	0
J. Beale	2,900	0	0

NEW BARNET.—Revised tenders for the erection of four semi-detached houses at New Barnet, for Messrs. Blake & Farrar :—

T. Pearce	£1,810	0	0
E. Doverhouse	1,790	0	0
Dover, Wood, & Co.	1,690	0	0
Bishop Bros. & Marston	1,523	0	0
W. Pavey	1,416	0	0
Harrison & Crable	1,393	0	0
J. P. Groome, Islington (accepted)	1,335	0	0

SANDAL MAGNA (Yorks.).—Accepted for restoration work to the tower of Sandal Magna Parish Church, Yorkshire. Mr. William Watson, architect :—

William Eccles, Newmillerdam (all the work)	£240	7	6

WAKEFIELD.—Accepted for three small houses for Mr. Edward Morgan, Balne-lane, Wakefield. Mr. William Watson, architect :—

E. A. Elvey, Wakefield (all the work)	£393	0	0

TUNBRIDGE WELLS.—For gate lodge, Sandown Park, Tunbridge Wells. Mr. Edwin T. Hall, architect, 57, Moorgate-street, E.C. :—

Thurbon	£520	0	0
Strange	485	0	0
Gale, Woking (accepted)	420	0	0

WEST HAM.—For the erection of a block of school buildings, to be known as the West Ham Park Schools, at West Ham, Essex, for the West Ham School Board. Mr. J. T. Newman, architect. Quantities by Messrs. R. L. Curtis & Sons :—

	Structure	Foundations	Total
W. J. Maddison	£13,070	£907	£13,977
J. Catley	11,698	699	12,397
Hearle & Son	11,324	779	12,103
G. J. Hosking	11,011	699	11,710
Norton & Son	10,999	678	11,677
B. E. Nightingale	10,935	666	11,601
J. Morter	10,753	670	11,423
A. Reed*	9,939	647	10,586

* Accepted.

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